Food Packer

The National Magazine of Production and Management

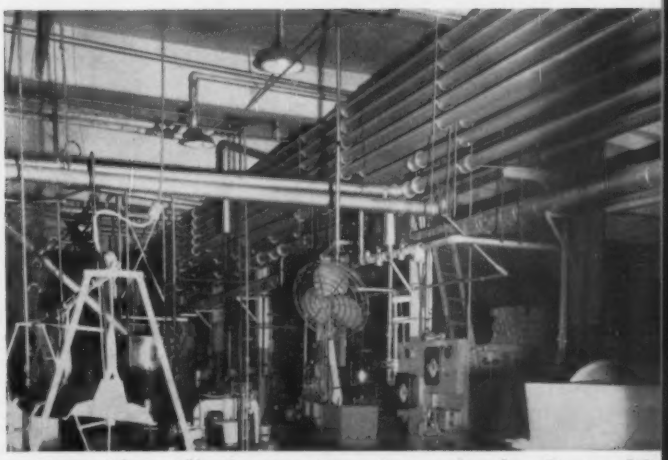
CANNING GLASSPACKING FREEZING

A Vance Publication

May 1958

Man of the Month
Adolph C. Ketzler

Cost Control for Tomato Processors – Page 14



New Line Eliminates Dry Bean Soak – Page 22

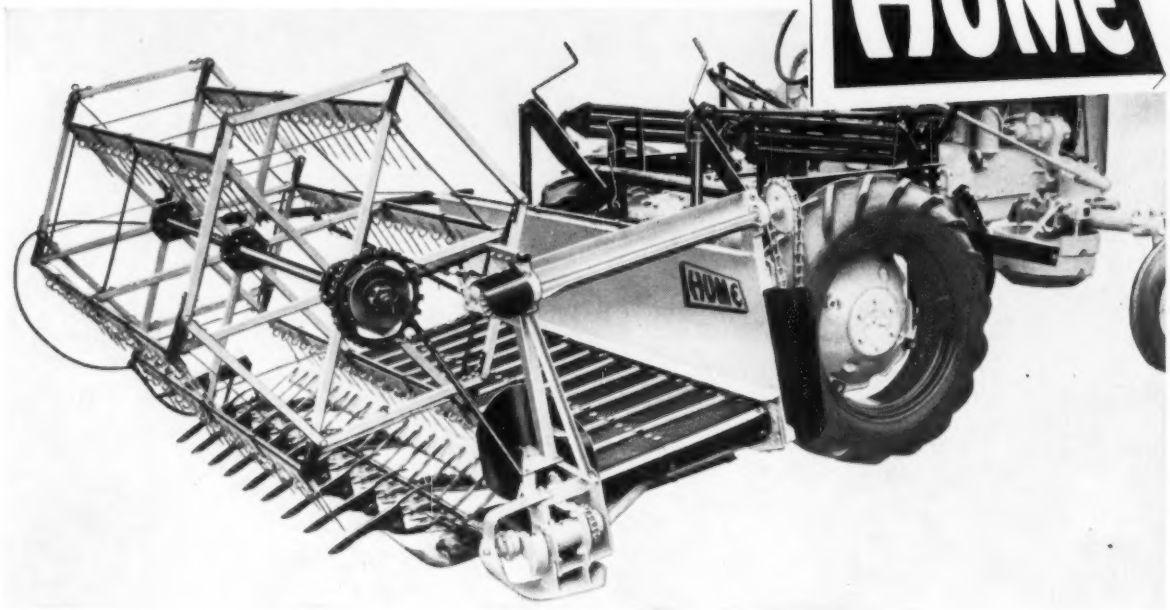
Canned Foods Sale Stirs Small Town – Page 18

Other Features:

- Gould Tests Snap Bean Varieties – Page 26
- Corn Maturity Predicted More Accurately – Page 17
- New Machinery, Supplies – Page 27

HUMETHOD IS EVEN BETTER WITH IMPORTANT GM-58 IMPROVEMENTS

HUME



The model "GM-58" Tractorrower and the model "M" loader provide you with the "perfect" green pea harvesting team — a team designed to harvest the crop under severe weather and field conditions. They handle the crop at the time "you pick" and with gentle care — get the job done when other methods fail.

Used as a companion machine to the Hume Tractorrower, the model "M" loader builds a loose, fluffy load that is easy to feed at the viner. And, of course, loose vines can mean less damaged peas, greater viner capacity and threshing efficiency.

PROVEN DEPENDABILITY, the watchword of the two-stage HUMETHOD of green pea harvesting, has been given added meaning with the important improvements found on the GM-58 Tractorrower. This machine is the culmination of twenty years' Hume experience in the design of successful pea harvesting equipment.

NEW FEATURES ON THE GM-58

- Redesigned header balance system increases cutter bar's sensitivity to varying ground conditions — has two simple field adjustments which the operator can make as cutting conditions change.
- Screw-operated bell-crank which adjusts all four cutter bar shoes at once.
- Simplified drive system.
- Anti-trash header channel.
- New subframe for easier tractor attachment.

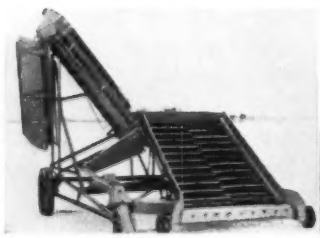
Model "S" Tractorrower available for extra heavy-duty operation.

Write today for full information on Hume Specialized Harvesting Equipment designed especially for the Food Processing Industry.

H. D. HUME COMPANY • *Mendota 1, Illinois*

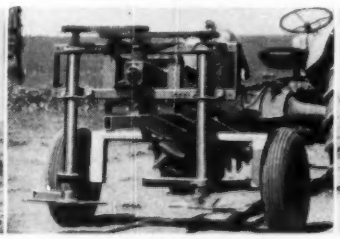
Hume Products Corporation

Mechanicsburg, Penna., Beaver Dam, Wis.



"MF-68" LOADER features wide pickup, folding elevator.

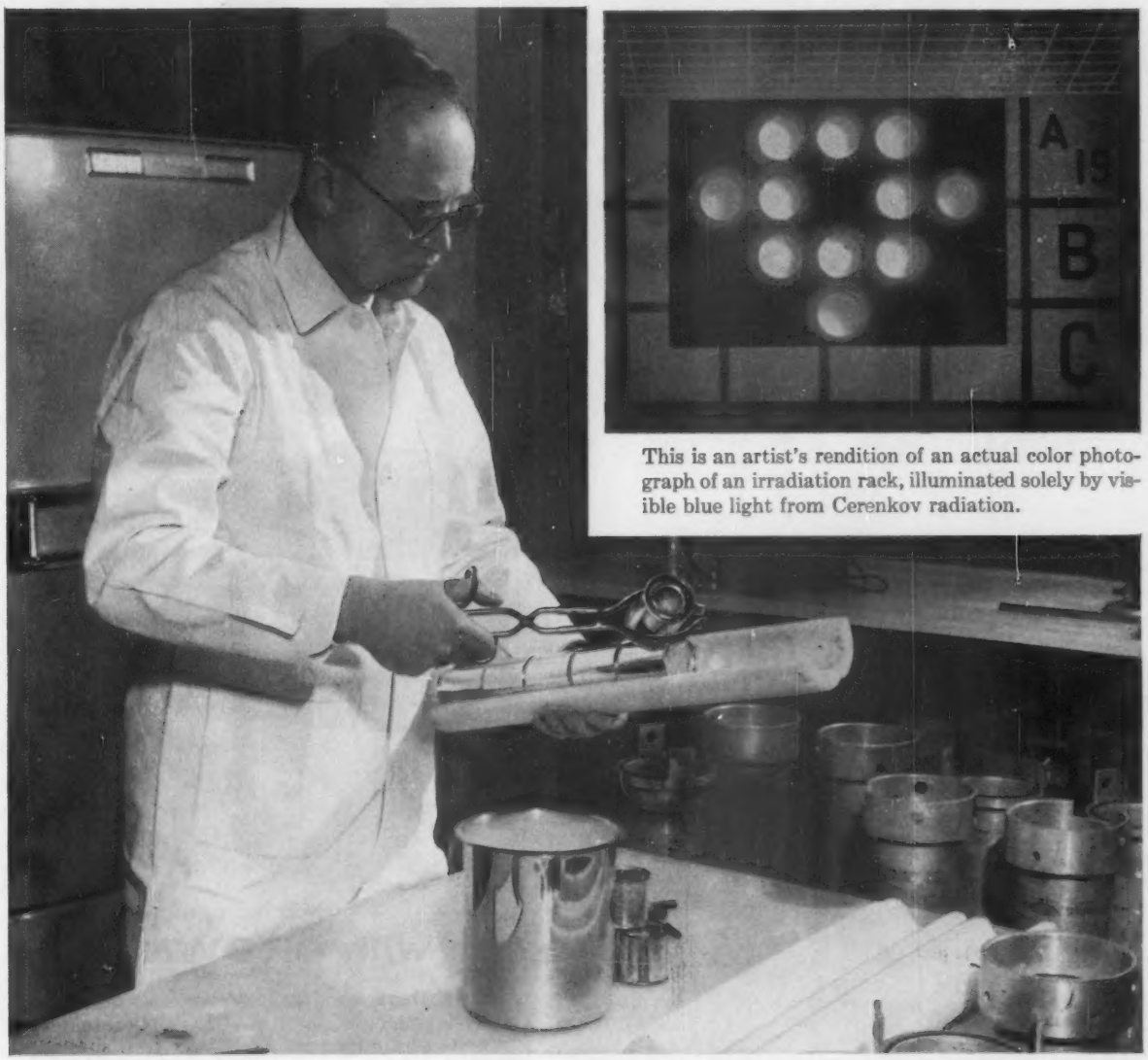
"79C" CUTLODE for spinach, peas — sturdy yet lightweight, big capacity, easy to transport.



"T" LIMA BEAN CUTTER, used with "A" loader provides "cut and load" in one operation.

"A" LOADER, elevator folds for compact field-to-field transport.

TOMORROW'S CANNED FOODS MAY BE EVEN BETTER BECAUSE OF EXPERIMENTS WITH **NUCLEAR ENERGY!**



This is an artist's rendition of an actual color photograph of an irradiation rack, illuminated solely by visible blue light from Cerenkov radiation.

One experiment calls for the exposure of frozen canned foods to gamma irradiation. This photo, taken at the Argonne National Laboratory, shows cans being placed in an insulating cylinder. The cylinder will be sealed within one of the aluminum urns (at right), then lowered into the water of the radiation canal. There it is exposed to rays yielding from one to two million roentgens an hour.

High energy irradiation, alone or combined with thermal processing or freezing, shows interesting possibilities as a means for preserving packaged foods. To explore fully this new technique, American Can Company scientists are participating in an extensive irradiation research program.

Part of this work is carried on through cooperative projects at government and university laboratories, part through independent studies at Canco's multi-million-dollar Research Center in Barrington, Ill. As a result of this program, food for the nation's dinner tables some day may be sterilized by nuclear energy.

AMERICAN CAN COMPANY

However you **can** *cherries...*

can with CROWN

Although there are dozens of varieties of cherries and packing recipes, there is a CROWN container to suit the exact requirements of your own specialty. CROWN will deliver where and when you want them, for peak-season canning.

To help your merchandising program, CROWN can provide complete package design . . . modern, colorful lithography . . . plus complete packing line engineering advisory service . . . all with that *extra* touch of CROWN personal attention. Plants and offices in 18 strategic locations.

Write for your copy of CROWN's booklet, "Crown Art and Lithography." Crown Cork & Seal Company, Inc., Can Division, 9314 Ashton Road, Phila. 36, Pa.

whatever you can . . . call on

CROWN

CROWN CORK & SEAL COMPANY, INC.
MANUFACTURERS OF CLOSURES, CONTAINERS AND MACHINERY

Food Packer

May 1958

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Events to Come

May 4-7. Super Market Institute, Inc., annual convention, Cleveland Public Auditorium, Cleveland, Ohio.

May 5-7. Purdue Industrial Waste Conference, Purdue Memorial Union Bldg., Lafayette, Ind.

May 5-9. National Restaurant Association, annual convention and exposition, Chicago.

May 11-14. Processed Apples Institute, Inc., Seaview Country Club., Abesecon, New Jersey.

May 22-23. National Canners Association, Spring meeting of board of directors, Sheraton-Park Hotel, Washington, D. C.

May 25-29. Institute of Food Technologists, annual meeting, Palmer House, Chicago.

June 8-9. Michigan Canners & Freezers Association, Spring meeting, Park Place Hotel, Traverse City, Mich.

June 11-12. National Red Cherry Institute, Spring meeting, Whitcomb Hotel, St. Joseph, Mich.

July 7-25. Indiana Canners Technicians School, Purdue University, Lafayette, Ind.

July 17-18. National Kraut Packers Association, annual meeting, Catawba Cliffs Beach Club, Port Clinton, Ohio.

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...glamour in glass!

puts a new look of beauty in the future of your food

They love the shape your food is in—in H-A crystal flint jars, nappys, and colorfully designed re-use tumblers. H-A puts beauty to work for the products you pack. That's why the product appeals that keep you in business, mean more in glass by H-A!

HAZEL-ATLAS GLASS division of Continental Can Company

WHEELING, WEST VIRGINIA

Sell Canned Foods at 'Grass Roots'

Last month, Carl Kouba, sales manager of the Larsen Co., wrote us that the real responsibility for industry promotion lay with the individual canner. He referred to the editorial in April FOOD PACKER: "Many Voices Can Sell as One."

Mr. Kouba said, "Every packer can do it in his own backyard—in his own natural territory, with his own customers." He was speaking from experience, for back in February, Larsen Co. staged such a promotion in cooperation with American Farm Bureau in Fort Atkinson, Wis.

"It's a grass roots deal, but whether it is done on an area basis or on a local basis it takes work and planning. With those two ingredients there is no doubt that the idea is extremely sound for those who will put forth the effort."

Recently we spent part of a day in Fort Atkinson talking with G. W. Knaub, plant manager, and other members of the Larsen staff, with grocery store managers, editors—and local customers. You can read about it on page 18.

Later Mr. Kouba made an additional point when he said, "If every plant in Wisconsin would put on a show like this, it would really be an industry program."

The real beauty of the plan, he said, was that a plant could use a small promotion for the combined purpose of sales, community relations, and industry promotion.

"Why, there is a little plant in Minnesota that packs some of the finest cream-style corn I have ever tasted and probably no one in town knows it is packed locally!"

Home town relations are important enough to justify a label and a little promotion, he said.

The idea of a home town promotion is not new. We have eaten corn along the main street of Mendota, Ill., courtesy of the California Packing Corp. and the Mendota Chamber of Commerce, and in Vinton, Ia., on the Green Giant Co. We know that the sauerkraut canners hold a successful Sauerkraut Day in Forreston, Ill.

There are applesauce derbies, tomato queens, pickle weeks, all aimed at home town support. Many of these plans have been remarkably successful. Any of them could tie grower relations, town promotion, and merchandising together, under the label of a national industry promotion, in as neat a package as the Fort Atkinson achievement.

Each community would take a new look at its home town plant. There would be more pride in the home town product. Seasonal workers would be sold on the plant as a fine place to work.

The cumulative effect of scores of home town promotions would be to generate a nation-wide industry promotion of gigantic proportions. Think of the impact of so many individual—yet cooperative—promotions from an industry-wide point of view.

The next step is to coordinate the program. Most state canners associations will support the national Canned Foods Month in September, according to an announcement from the California headquarters of the promotion. It seems to us that if there is ever a time to stage a canned foods promotion, whether it is an advertisement in a New York City daily paper or a plant open house in One Lung, Ark., September is the month to do it.

What better way is there to start a national industry program? A plant, however small, could run its own show. Two or more plants in a single town could combine their efforts.

Again, in the words of Mr. Kouba, "It is just as successful to go into a restricted, solidified area and push your products as it is to do it on a national scale."

The biggest noise we can make may be right at home. And if we all make that noise at the same time, Mr. and Mrs. America are likely to be more impressed with the value and importance of canned and glass packed foods than they ever have been before. Why not try the "grass roots" approach in *your* backyard?

For a manufacturer to have his product seen in all its luscious goodness—what an advantage that is! Particularly when additional flattery is provided with a Brockway Glass Container. It invites purchase on sight. It says to the ultimate consumer, we have nothing to hide.

Brockway provides the finest glass containers in the world . . . and it provides too, a friendly, cooperative organization . . . an organization that retains interest and responsibility until it is convinced that the container it provides serves the purpose for which it is intended, to the complete satisfaction of the manufacturer. Try Brockway and see for yourself.

SYMBOL OF QUALITY · GLASS CONTAINERS

BROCKWAY GLASS

COMPANY, INC.

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Sales Offices in Principal Cities

Subsidiary—Demuth Glass Works, Inc., Parkersburg, W. Va.;

Plants: Brockway, Pa. • Crenshaw, Pa. • Lapel, Ind. • Muskogee, Okla. • Freehold, N. J.

HOW TO SIGNAL A SHOPPER'S ATTENTION!

Let Pfizer Vitamin C Add New Sales Appeal to Your Canned Fruit Juice Blends

● Today, fruit juice blends with "something extra" make a shopper stop—and *buy*.

The words "Vitamin C Fortified" have just this kind of selling power...they offer a busy housewife a built-in reason for choosing your brand. And this attention-getting, sales-producing feature will cost you just *a fraction of a cent per unit*. It's truly a low-cost way to keep sales up high.

Pfizer, a leading producer of vitamins for 20 years, offers you Vitamin C (ascorbic acid) in the most convenient, easy-to-handle forms. In addition to vitamin fortification, Pfizer Ascorbic Acid can also provide an important safeguard for your beverages against color and flavor fading that result from oxidation during shelf life. For full details about Pfizer Vitamin C write to:

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Pioneer in the Manufacture of Vitamins

Industry Names and News

S. H. Grace

W. A. Bowen

Samuel H. Grace has been appointed manager of the new National Can Corporation plant in Marion, Ohio.

William A. Bowen was elected to the Board of Directors of the Bowen Engineering Inc., North Branch, N. J. Re-elected as vice-presidents were **Dexter A. Smith** and **D. W. Belcher.**

Frederick C. Heinz, vice president in charge of industry relations of H. J. Heinz Co., was recently presented a gold watch in recognition of 40 years of service with Heinz.

Charles W. (Walt) York, editor of Canner and Freezer, former secretary of the Pennsylvania Canners Assn., former editor of the Pennsylvania Packer, died in April.

L. S. Long was appointed district sales manager of the C. H. Musselman Co., Biglerville, Pa.

Container Corporation of America has acquired **Garmold, Inc.,** manufacturers of molded plastics, Totowa, N. J.

W. J. Howe was named sales representative of Mechanical Packaging for the Central Packaging Division of Fibreboard Paper Products Corp., San Francisco, Calif.

George W. Crabtree was named vice president of the container division of Campbell Soup Co., Camden, N. J. Also appointed were **Edwin J. Foltz** as vice president of personnel and **E. Marshall Nuckols, Jr.,** vice president and secretary.

Max J. Hanke was appointed head of the new special products division of Pasco Packing Co., Dade City, Fla.

C. H. Farrar was named manager of the Baltimore plant of National Can Corp. He succeeds **S. R. Hiner, Sr.,** who is retiring after 40 years of service with National and 51 years in the can industry.

Hamilton C. Davis was elected president of the Canners League of California at the recent 54th Annual Meeting in Santa Barbara, Calif. **Paul V. Rea** was elected vice-president. Mr. Davis is president of Walnut Creek Canning Co. and Davis Canning Co., and vice-president of Patterson Canning Co. Mr. Rea is executive vice-president of United States Products Corp., Ltd., San Jose, Calif.

F. N. Eastwood

Rob't Lowe

Fred N. Eastwood, formerly adhesives sales supervisor for National Starch Products, Inc., in the Southeastern division has been transferred to the company's Southern division and will be headquartered in New Orleans.

Robert Loew has been appointed sales manager of the label department of H. S. Crocker Co., Inc., San Bruno, Calif.

Harold J. Humphrey has been appointed corporate research consultant for General Foods Corp., White Plains, N. Y. **Dr. Kenneth Dykstra** was named to succeed Mr. Humphrey as research manager of the Birds Eye division.

New officers elected at the recent annual meeting of the Midwest-Preservers Association were **Francis J. Oelerich,** Oelerich & Berry Co., president; **Richard D. Fellows,** Squire Dingee Co., vice-president and **Gordon S. Perry,** Holsum Food Products Co., secretary.

John P. Jansson was named manager of architectural sales for the aluminum division of Olin Mathieson Chemical Corp., New York.

Albert T. Both was appointed assistant vice president-operations of Chase Brass & Copper Co., Waterbury, Conn. **Howard C. Walters** succeeds Mr. Both as works manager of the Cleveland Mill division.

William B. Thomas has been appointed purchasing agent, field operations, U.S.A. for H. J. Heinz Company, Pittsburgh.

A. Edward Brown has been elected president of Michigan Fruit Canners, Inc., Benton Harbor, Mich. Other officers include **Robert L. Hutchinson** as vice-president and **J. Edward Hutchinson** as secretary.

Ronald Wadsworth, manager of California Packing Corporation's Mountain States Division retired recently. He has been associated with the canning industry for 50 years. He was succeeded by **W. C. Druehl** who has been assistant division manager since 1955.

H. C. Kayser, H. C. Kayser Co., Minneapolis, was appointed chairman of the 1958 Institutional and Industrial Sales Committee of the National Food Brokers Association.

The Van Camp Sea Food Co., Inc., announced it will move its headquarters to the Port of Long Beach, Long Beach, Calif., in December.

H. E. Gude

G. P. Gardner

Harry E. Gude was appointed vice president for manufacturing of the aluminum division of Olin Mathieson Chemical Corp., New York.

George P. Gardner, Jr., was elected chairman by the board of directors of United Fruit Co., New York at their recent organizational meeting. Gardner, a partner of Paine, Webber, Jackson and Curtis, Boston, has been a member of the UF board since 1953. He succeeds T. Jefferson Coolidge who served as board chairman for 20 years.

Exotic Chinese Specialties or corn from Iowa...

Both depend on sales appeal to take them off the shelf and into the home. That's why it's important to protect the appetizing colors on the label. Feel this finish. It's Tuff-Coat, the toughest, most beautiful finish of them all. Ideal for all packages where scuff, water or heat resistance is desirable. Worth investigating!

YOU ARE INVITED to make your own comparison

WRITE MURISON LABEL CO., INC., FOR LABEL SAMPLES. Plants in:
San Jose, Calif.
Meriden, Conn.
Peoria, Ill.

MUIRSON *Tuff-Coat* LABELS

protect their sales appeal

Industry News

(Continued from Page 10)

Raymond J. Kenard was named vice president in charge of finance of Coastal Foods Co., Cambridge, Mass.

Russell H. Winters, executive vice president of sales for National Can Corp., has been elected chairman of the U. S. Department of Agriculture's Vegetable Research and Marketing Advisory Committee.

Paul J. Cardinal, vice president in charge of industrial relations for Hoffmann-LaRoche Inc., Nutley, N. J., has been elected a vice president of the National Vitamin Foundation, Inc.

Lewis Gruber, president of P. Lorillard Co., and **T. O. Hofman,** president, Borden Foods Co., were elected to the board of directors of Grocery Manufacturers of America, Inc.

S. G. Cederquist, The Nicholas Co., Inc., Indianapolis, Ind. was named chairman of the 1958 National Food Brokers Association Merchandising Committee.

R. L. Fetters has been named manager of the Atlanta, Ga. branch of Owens-Illinois Glass Co. **Bill B. Jones** has been appointed manager of Nashville, Tenn. territory.

Eleven employees of **Berlin Chapman Co.,** Berlin, Wis., who have been with the company 20 years or more, were honored guests at a 50th anniversary dinner recently. Each man was presented with a gold watch.

Olin Mathieson Chemical Corp., New York is establishing a folding carton operation in West Monroe, La. Production will begin in the fourth quarter of 1958.

The Pet Milk Company and Development Center, Greenville, Ill., will be completed this summer according to T. R. Gamble, executive vice-president.

Pierce Lonsdale, after 31 years with Standard Knapp Corp., of Portland, Conn., retired on May 1.

H. J. Heinz Co., Pittsburgh has purchased the capital stock of Tamiau's Conservfabrieken N. V., a Netherlands food processor.

SPOTLIGHTING • NEWS

Month-Long Promotion Given National Support

Nationwide support has been given to the month-long promotion of canned foods, according to Howard Eaton, executive director of "September is Canned Foods Month."

In addition to the associations that initiated the project, the following groups have announced their support: Florida Canners Association, Florida Citrus Commission, Illinois Canners Association, Iowa-Nebraska Canners Association, Inc., Maine Canners' & Freezers Association, National Kraut Packers Association, Northwest Canners & Freezers Association, Pennsylvania Canners Association, Tri-State Canners Association, Wisconsin Canners Association, and Ohio Canners' Association.

Microbiological Meeting Will Be Held at Purdue

The 11th Annual Industrial Microbiological Institute will be held at Purdue University, Lafayette, Ind., June 2-7, 1958. The Laboratory sessions will be under the direction of Professor C. L. Porter. Symposia will be held by noted authorities in analytical microbiology, fungicide, and special application in industry.

Co-op Acquires Two California Canning Firms

California Canners and Growers, a farmer-owned cooperative, representing the California canning crop growers, will operate two old line California canning firms. The capital stock of Richmond-Chase Co. of San Jose and Filice & Perrelli Canning Co., Inc. of Richmond, is being acquired by California Canners and Growers.

California Canners and Growers was organized last fall for the purpose of enabling growers of canning crops to enter the processing and distributing field. The transaction will make the new cooperative the fourth largest canning organization in the state, doing a volume in excess of $50 million dollars. The combination brings together two well-known California companies with large processing facilities in San Jose, Richmond, Gilroy, Merced and Stockton.

No changes will be made in the offi cers, the management or trade and distribution policies of the two companies, according to Earl Blaser, president of California Canners and Growers. Both companies will continue to operate as wholly-owned subsidiaries but as separate entities, he explained.

4th Annual Fancy Foods Show at Waldorf-Astoria

The fourth annual National Fancy Foods and Confection Show will be held at the Waldorf-Astoria Hotel in New York on August 24-27.

According to Harold Roth, president of the National Association for the Specialty Food Trade, the forthcoming show will present over 5,000 products.

Mr. Roth attributes the upswing in sales of specialty foods to several factors.

1. Traveling abroad by Americans acquainting them with foreign specialty foods and thus becoming customers when they find the foods available in this country.

2. The desire for quality and the growing individuality of taste. People are less interested in quantity and more interested in the taste and quality of food.

3. The growth of home entertainment as "entertainment" rather than a chore.

4. An increasingly large number of stores with fancy food departments.

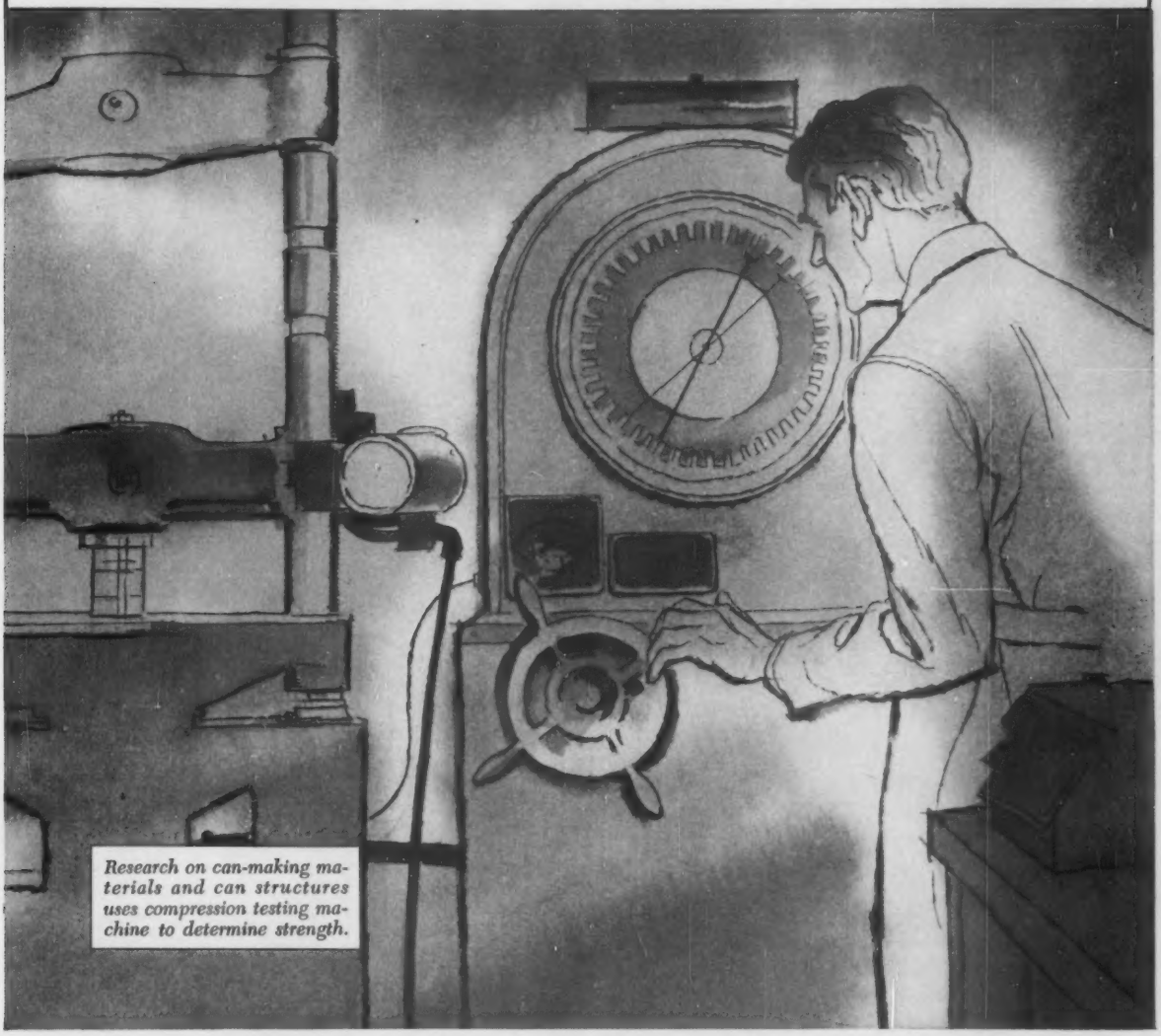
Soups Still Growing

The annual report of the U.S. Department of Commerce on shipments of canned foods has been released with figures for 1956.

All canned fruits and vegetables showed an increase over 1955. Biggest gains were made by canned soups and poultry products (27%) and canned nonseasonal vegetables and specialties (15%). Canned baby food and canned fruit juices showed the same percentage increase (9%). Canned fruits in 1956 were 6% above 1955, canned seasonal vegetables 7%.

PRODUCT DEVELOPMENT:

a Continental packaging service that works for you



Research on can-making materials and can structures uses compression testing machine to determine strength.

when you've thought of a new package—

chances are we're already working on it!

Where do packaging ideas come from? At Continental, they come from continuous inter-action between the desires of our customers and our own never-ending search for new and better packages. For example, consider these recent developments: cemented side seam cans; new, stronger cluster beaded cans; aerosol cans for *food.*

Continental's new Chicago Research Center is the world's largest integrated center for metal container research and development. Here, and in Continental laboratories from coast to coast, a wide range of Continental packaging services are at work for *you* . . . seeking new ways to speed and simplify your operations . . . even before you call.

CONTINENTAL CAN COMPANY

Eastern Div.: 100 E. 42nd St., New York 17 • Central Div.: 135 So. La Salle St., Chicago 3 • Pacific Div.: Russ Bldg., San Francisco 4 • Canadian Div.: 5595 Pare St., Montreal, Que.

Many small tomato processing plants, similar to this one in Indiana, are squeezing their production budgets in order for their products to fit in under the market prices. How securely costs are held, how wisely cuts are made, may well determine whether a canner will go into another season.

by Walter Lee Fishel
Purdue University

Cost Data System Sharpens Decisions in Mid-Season

Cost accounting records* from Indiana tomato canners show how seasonal operations are improved

Most tomato canners, particularly the smaller ones, do not have a cost control system. They should. Those that have some sort of a system do not use it enough.

A cost control system can provide valuable data from day-to-day without too much extra work. A competent bookkeeper or clerk can do the work with little additional instruction. Most canners who have a cost control system find its main use in day to day operation.

But another function, which is just as important, involves additional mathematical tricks that can be played with the cost figures. This additional cost data does not always pinpoint a decision for management, but it is often a great improvement over guessing.

In this article, an outline of the requirements of a cost accounting system for a tomato plant will be presented. The basic mechanical operations will be shown. Also a few of the additional operations that can be used to investigate a particular plant problem will be shown.

The figures and illustrations used are from the records of seven Indiana tomato canners. One plant supplied the cost figures that were kept during the operating season. For the other six plants, cost data was obtained from company records at the close of the season.

Additional computations made on all the data gave what would have been excellent information for use during the operating season.

Operating Decisions

During the packing season a tomato canner can make only a limited number of decisions that will affect the end-of-year profit. From the time the tomatoes begin to come into the yard, he cannot change his production system much, add new machinery, or pack additional products. These decisions must be made during the off-season.

However, there are many operational decisions that must be made:

What price should I pay for tomatoes?

How many women should I put on the peeling lines?

How many men should be on the unloading crew?

How much puree or juice should be packed?

To most of these operational questions, some immediate answer must be found. A plant manager with long experience may very well trust to his knowledge of the plant and of the commodity to make the decisions. However, a cost accounting system can give him additional information on which to confirm or modify his decision.

This information is taken from the original data provided by the cost accounting forms with the simple supplementary computations.

Raw Product Data

Basic data needed for cost figures are the quantity and price of the tomatoes. The raw product is figured in tons or in both tons and number of baskets. Price is always on the basis of a ton.

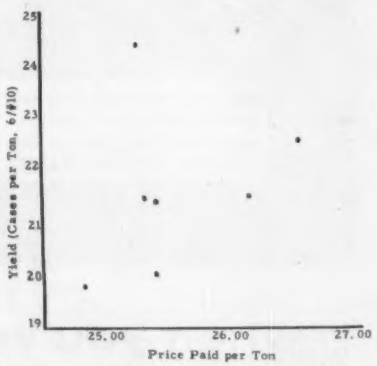
If the product is graded, the price and quantity of each grade purchased each day is needed.

All of this information is available from the copy of the grower's receipt.

The rate of consumption of the raw product is also needed. This can be obtained by taking an inventory after the end of each pack day and determining the amount of raw product consumed or by use of a simple measuring device which automatically counts the number of baskets as they move to the dumping position.

Labor Data

The number of employees, the



How good is raw product?

A plant manager should know how much he can save by buying superior tomatoes. The number of cases from a ton is probably the most important cost figure available to him. It affects the cost of the raw product and indirectly the cost of labor.

The chart above represents the purchases of one canner. Each dot shows the price and yield of raw product purchased during one week. It shows that the canner, who tries to pay more for better tomatoes, only once failed to recognize a major change in yield.

*This article is based on research authorized under Purdue Agricultural Experiment Station Project 838.

hours they work, and the rate of pay they receive must be recorded on the cost accounting sheets. The work that is done on a single product is classified separately for each item produced by the plant.

The number of cases packed each day are recorded and classified according to type, can size, and grade of product.

Standardized Cases

Any effective cost control system must permit ready comparison of cost figures for different items.

In the seven plants studied, the costs are compared on a case basis. When more than one product is packed, as in most plants, the cost figures are converted to a common or "standardized" case.

Formulas are used which easily change costs of one type of product into the cost terms of another product. These formulas are based on three factors and are the cornerstones of the cost accounting system. They are derived from three factors: the comparative volumes of the can (#2, #303), the style of the pack (canned peeled tomatoes, juice), and the grade (fancy, extra standard).

1. The conversion factors for volumes of cans are frequently used and are readily available. For example, in converting 24/#2 cans to 24/303's equivalent, multiply by 1.22.

2. The formula for conversion of one particular style of pack into the terms of another may depend on the operation of the particular plant. A plant with more efficient peelers and less efficient extractors may be able to get relatively more cases of tomatoes out of a ton of raw product and fewer cases of juice than another plant. The average yield for a particular plant may be the closest approach to a conversion factor. For example, if #2 peeled tomatoes run 35 cases to a ton and #2 juice 43.5 cases per ton, then 24/#2 cans of tomatoes can be converted to its juice equivalent by multiplying by 1.24.

3. Finally by an arbitrary judgement, a 5% increase in raw product is used for each grade difference. For example, in converting raw product requirements of a case of fancy 24.#2 juice into its equivalent in extra standard 24 #2 juice, the tons of tomatoes for the fancy grade juice would be divided by 1.05.

Simple Computations

The formulas must be worked out with some care. But once established (the conversion factors will need to be confirmed in each plant over a period of years) they can be handled by a bookkeeper or clerk.

The cost information immediately available can be compared with similar cost figures for the previous day, week, or year.

Here is a summary of some of the information that is readily available.

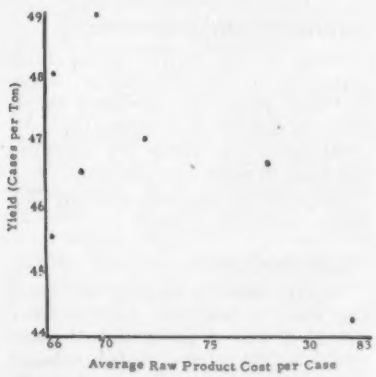
1. Yield of raw product. The weight of the raw product consumed in any day divided by the total number of cases if only one product is packed or by the number of "equivalent" cases if more than one product is packed gives the yield (number of cases per ton of raw product).

2. Cost per case of raw product. Total raw product cost divided by total or "equivalent" cases provides one of the most useful figures for determining changes in plant operation.

3. Cost per case of labor. For most labor the cost per case is total cost divided by total or "equivalent" cases of each item. Since peeling labor is usually on a piece work basis, the "rate per hour" is considered total cost divided by total peeling hours.

Labor that is not identified with a particular product, (for example, in unloading the raw product) must be allocated to each grade and class of items on the basis of "equivalent" cases.

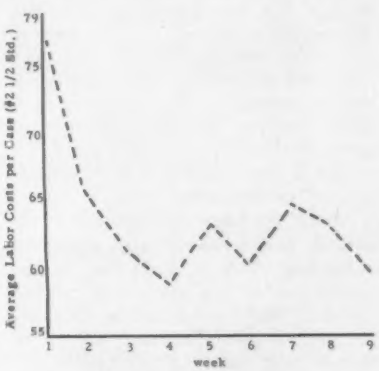
This figure is most useful in determining costs of a particular class, can size, and grade of a product; comparing costs between grades; determining



How much should you pay?

A comparison of yield and cost-per-case figures of the raw product can help set a price schedule and a grading system which acts as an incentive for delivery of high quality tomatoes. This would need to be accompanied by a close coordination of picking, delivery, and processing schedules.

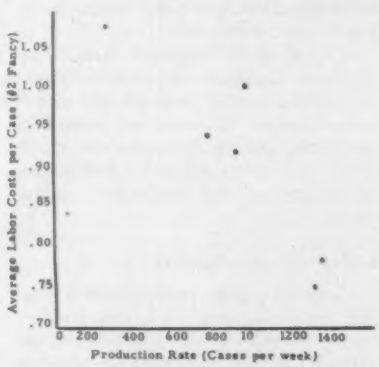
One canner, whose raw product prices were intended to reflect changes in yield, kept average costs per case between 67-72¢ for most of the season despite changes in yield.



When should season start?

The beginning and the end of the packing season brings additional problems to the tomato canner. The supply of the raw product will determine when the production can start. Cost data from the previous year helps show when pack can be started with a reasonable chance for profit.

During the first week of operation, this canner (see chart) was 15¢ a case higher than the average for the remainder of the season. His final week of production, however, was still well below the average cost.



How much do you pack?

Many factors influence the size of the pack of each item in a multiple product plant. Cost of production is one of them. If the production rate must be slow, labor costs may be high. If the rate cannot be increased, the line might better be shut down. This again would be judged against the expected selling price of the item.

In the chart above, the figures would tell the canner that when production of #2 fancy tomatoes drops from 1,200 cases per week to 600 the cost per case would increase by 20¢.

PRODUCTION

Size		Cases Packed Today Actual	Cases Packed Today Standard Cases	Cases Packed To Date Actual	Cases Packed To Date Standard Cases
24/#2 1/2	Standard				
	Extra-Standard				
6/#10	Standard				
	Extra-Standard				
	TOTAL				

Standard unit at plant using these records was a case of Standard 2½ cans. Conversion factors were: Ext. Std. 2½, 1.053; Std. #10, 0.923; Ext. Std. #10, 0.972.

RAW PRODUCT

	Tons Used	Total Cost	Cost/Ton
From Yesterday's:			
Plus Today's:			
TOTAL TO DATE:			

Cases packed (in standard units) _____
Divided by hours operated _____
Cases per hour _____

Cases packed (in standard units) _____
Divided by Tons used _____
Tons per hour _____

Raw product cost is figured on a daily basis for both consumption and cost. "Today's" figure is consumption, not receipts.

LABOR UTILIZATION

Type Labor	Rate (1)	Hours (2)	Total Cost (3)	Unit Cost/Case #2 1/2 (4)	Unit Cost/Case #10's (5)
Dock hands *					
Peeling *					
Sorting *					
Bucketmen*					
#2 1/2 Tomatoes:					
Fillers					
Closing Machine					
Can Catcher					
Cooker					
Case & Carton					
#10 Tomatoes:					
Fillers					
Closing Machine					
Case & Cartons					
Can Feeder *					
Misc. *					
Warehouse *					
Boiler Op'r. *					
Plant Suprt. *					
Office *					
TOTAL LABOR COST					

Instructions.
1. Peeling cost divided by hours of peeling labor equals peeling cost per hour
2. Total hours worked on each operation
3. Rate times total hours worked
4. a. Divide items identified by (*) by standard no. of cases packed.
   b. Divide items listed under #2 1/2's by actual cases
5. a. Multiply unit costs in col. 4 for label identified by (*) by the conversion factor (x o.9i)
   b. Divide items listed under #10's by actual cases of #10's packed

Labor utilization records fix direct labor costs for each item.

COSTS

Item		Quantity Used		Cost	#2 1/2	#10
Tomatoes		Tons @	each			
Cans		Cases #2 1/2	each			
		Cases #10	each			
Labor	Peeling *	Buckets @	each			
	Hourly	Hours @1.00	each			
		Hours @1.05	each			
		Hours @1.10	each			
Cartons		#2 1/2	each			
		#10	each			
Salt, Brokerage, Labels, Power, Coal, Supplies, Truck expenses, Freight, Office, Insurance, Exp., Telephone, Legal, Interest Taxes, Misc. Expenses			each			
Management and Depreciation			each			
TOTAL COSTS						

Cost summary shows total costs rather than just total variable costs. Both totals are useful, but variable cost figures are of more use in daily operations.

optimum production speeds from a labor cost standpoint; and the comparative importance of labor in the packing of each product.

4. Cost of packing each item. Management decisions made in mid-season on the kind of pack (should standard tomatoes or juice be packed if only low quality tomatoes are available?) are often aided by comparing cost figures with expected selling prices.

Labor Requirements

Canning plants rarely have a system for evaluating a job that is done on an hourly basis rather than by piecework. A seasonal tomato plant is inclined to be run informally, with extra labor shifted by a foreman rather than by management design.

Within limitations, however, certain job evaluation procedures are adaptable to a tomato plant. In unloading raw product and in handling filled cans, the operations can be defined fairly closely.

In basic time-and-motion procedures, the job is defined and the time to do it properly is recorded. This is the theoretical time for continuous performance of a specific operation such as unloading a truck or emptying a basket. The number of operations are figured in terms of an hour.

Then the daily performance of each worker can be checked against the theoretical standard. The number of operations each day (number of trucks unloaded, number of baskets dumped, etc.) is divided by the number of man hours used on the job. This gives an average time for a specific operation which is then expressed as a percentage of the theoretical time.

When the labor management is informal, and a man is sent from the unloading dock to help out in the warehouse at the discretion of the foreman, the figures can be misleading unless procedures are set up to record such shifts.

There are other hazards. A change in the quality of the tomatoes will change the speed of handling the raw product. A change in the size of a can will change the speed of handling filled cans.

The real value of the system in a canning plant is to give management and the supervisory staff another way of checking on labor efficiency beside personal inspection and total labor cost figures.

A daily report on the percent efficiency issued to the foreman for each job under his supervision would help locate trouble areas whether they were in labor utilization, machinery, or raw materials.

Additional Manipulations

Once a cost control system is in operation it can be handled readily by office personnel. However, to receive its full value, additional calculations must be made in seeking solutions to particular problems.

Some of the methods used are illustarted on these pages.

What Products?

A more difficult step in the use of cost data is described here in some detail. It was a problem that arose in one of the plants studied: Should the same items be packed when the raw product is scarce as when it is in good supply?

The answer in this case appeared to be "No."

When the plant is operating at less than capacity (when the raw product is scarce), management should attempt to use each ton most profitably. When the plant is operating at or near capacity (when there is a surplus of the raw product), management should attempt to maximize profit per hour rather than per ton.

In some cases, packing the same

(Continued on Page 31)

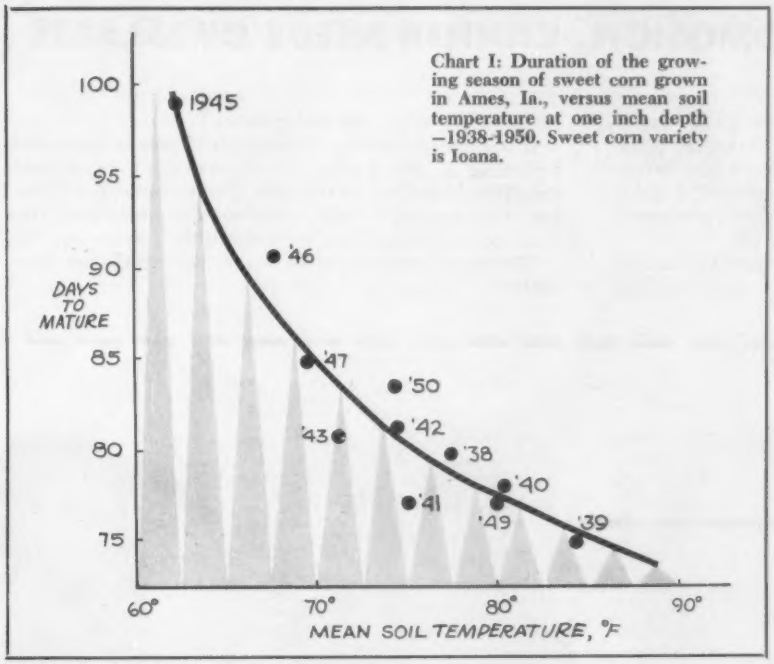


Chart I: Duration of the growing season of sweet corn grown in Ames, Ia., versus mean soil temperature at one inch depth —1938-1950. Sweet corn variety is Ioana.

More Accurate Predictions of Corn Maturity Date

By Dr. Jen-Yu Wang
Department of Meteorology
University of Wisconsin

Corn maturity dates may be judged more easily and accurately by a new approach to temperature data.

This method, explained here in some detail, is an indication of the direction of present research in agrometeorology. Only one environmental factor is used among the many factors that determine the response of crops.

Eventually, we hope to have an idea of the multiple effects of environmental factors. Some progress in this direction has been accomplished by the Department of Meterology, University of Wisconsin. We now have some ideas and estimates concerning the following questions for the growth and development of a crop:

1. What factors are involved and what is the significance of each.

2. How can the validity of each element be estimated for certain crops in a particular year.

3. How can two or more unrelated events be combined such as degrees Fahrenheit in temperature data and inches of rainfall in precipitation data.

4. How can a single and practical scheme to take the place of the classical heat unit system be established.

This last point is the one of most concern to canners.

This article is adapted from an address given by Dr. Wang before the Wisconsin Canners Association, Raw Products Conference in Madison, January 30, 1958.

Elements Involved

Of the many factors involved in the determination of the quality and yeild of a crop, weather is the most unpredictable. A good crop year can produce four to five times the volume of a bad crop year.

In Janesville, Wis., for example, the production of sweet corn varied from two tons per acre in one year to eight tons per acre in another year.

Measurement of Weather

This enormous variation in yield is mainly due to weather. Other factors such as fertilities, varieties and cultural practices are held relatively constant throughout these years. Thus, these factors should not influence the harvesting date significantly.

Weather involves a group of elements in the air as well as in the soil. The commonest of these elements which are known to us as temperature, moisture and light are still the dominating factors.

There has been a great deal of work done on the measurement of environmental factors. These measurements are the first of two necessary measurements in prediction of crop responses. The other measurement must be of the crop itself.

Measurement of Crops

In the study of weather-crop relationship, the differentiation between "growth" and "development" is necessary.

Growth refers to an increase in weight or volume of a certain organ of a plant as a whole within the time interval of a phase. Development is the appearance of a series of phases of a plant during the plant life cycle. For example, the flowering of a plant is development, while the height of the plant is growth.

In measuring plant response it is necessary to record the various phases of development since the response will change for different phases and for different stages of growth.

Data Necessary

The method of prediction of corn maturity shows how weather data when related to crop data can be used to predict crop response.

The original data was obtained from four different sweet corn varieties. They were grown in the Horticulture Farm, Iowa State College, Ames, Ia., from 1938 to 1950. Air and soil temperature records were taken at Agronomy Farm, two miles south of the Horticulture Farm. Both farms have the same type of fertile Webster loamy soil, as well as vegetable coverages, the air and soil temperature data on one place are representative of both .

The corn varieties were: two golden hybrid, Goldencross and Ioana, one white hybrid, Silvercross and one Country Gentleman type, Iogent 27.

The factors studied in formulating this test were:

1. The mean temperature of the soil at a one inch depth.

2. The length of the growth of the crop which is defined as the number of days between the date of planting and the date of harvesting a crop.

The soil temperature in this study was measured by a thermograph. However the mercurial thermometer

(Continued on Page 36)

FOR A LOCAL PROMOTION, CANNER NEEDS OWN LABEL . . .

The Fort Atkinson promotion of canned foods was a local promotion handled by the Fort Atkinson plant (with the blessings of the home office at Green Bay, Wis.). In Fort Atkinson the promotion was considered a great success. But in Green Bay? FOOD PACKER interviewed Carl Kouba, sales manager of the Larsen Co.

"We were satisfied with the promotion," said Mr. Kouba – but somewhat hesitantly. "It was good public relations for both the town and the growers."

It was a combination of things that made it successful. According to Mr. Kouba, the opportunity to work with local people made it worthwhile. This included the Chamber of Commerce, the high school age "demonstrators", the home economics teachers, the grocers, the newspapers, etc.

The farm representatives made the promotion even better.

COOPERATIVE CANNED FOODS PROMOTION STIRS WISCONSIN TOWN

Three members of a demonstrator team prepare the casserole under the direction of home economics instructor, Carolyn Giessel.

A "big town" sale of canned foods in Fort Atkinson, Wis., helped the Larson Co. promote relations with growers (relations have always been good, anyway). It brought town people in contact with the Larsen Co.'s organization, and made them aware of the company label.

Most important, it brought sharp attention to canned foods in general and canned peas and corn in particular. The "Freshlike" brand name of the Larsen Co. was not ignored during the promotion. The stores that carried the home town brand used cans of corn and peas in displays. But the Larsen Co. did not enter the promotion intending just to merchandise its own brand.

The idea started late in January when Jake de Hartog, Farm Bureau fieldman for Dodge and Jefferson counties, called on Ralph Ebbott, secretary of the Fort Atkinson Chamber of Commerce. Mr. de Hartog wanted to start a canned foods promotion to use up some of Wisconsin's surplus peas and corn. Mr. Ebbott sent him to see G. W. Krahn, general manager of the Fort Atkinson plant of the Larsen Co. Together with John P. Hein, personnel manager of the plant, the promotion was mapped out.

Lots of Help

The promotion was scheduled for the same week end as a dollar day sale in town. It was also the beginning of the national Food Comes First week. The canned food promotion was designed to tie in with both of these events.

The Larsen Co. organized the promotion, but volunteer help was easy to get.

Seven stores were contacted early in February. Six of them agreed. These six were the larger stores in town. The A&P store has five checkout counters, the IGA store, three. A Red Bell store has two checkout counters and the others one each.

The daily newspaper, the Daily Jefferson County Union, noted the promotion in both its news and editorial columns. Advertising salesmen from the daily paper and Fort Atkinson's weekly advertising paper worked with the grocery stores for additional space.

For the actual demonstration, a pea casserole was prepared by two home economics teachers from the high school. Six teams of home economic students, most of them 4-H girls, were recruited to work as demonstrators.

On the evening before the sale, a "kick-off" dinner was held. Everyone connected with the promotion, demonstrators, home economics teachers, Farm Bureau and Chamber of Commerce representatives, were fed at the expense of the Larsen Co.

Mrs. Mitzi Okamoto, home economist for the Larsen Co., at Green Bay, spent two days in Fort Atkinson. She supervised the preparation

. . . PLUS SUPPORT FROM ACTIVE FARM OR CITY GROUPS

Finally, the additional sales of canned corn and peas – some of it was Freshlike, much of it was under competitive label – was a contribution to the industry. Truly an industry promotion.

The merchandising accomplishments which came as the result of the promotion were so much gravy.

How useful is the technique?

It must be used by a company that has its own label. It must have local support and there must be a need for public relations within the town or with nearby farmers. (This would generally mean that the company must have a plant in the town.)

With all of these factors present, the promotion should be a good one.

"If all canners were to put on this sort of a show in cooperation with a farm group or some other group the total effect would be important for the industry," Mr. Kouba said.

"GOOD FOOD COMES FIRST"
The following agencies are cooperating to promote "FOOD COMES FIRST WEEK"
February 23 through March 1 in Fort Atkinson
The LARSEN COMPANY
COUNTY FARM BUREAU
CANNED FOODS OFFER
DON'T MISS OUR CANNED FOOD DEMONSTRATION FRIDAY NIGHT and SATURDAY MORNING BELKE'S
YOU ARE INVITED TO ATTEND OUR CANNED FOOD DEMONSTRATION FRIDAY NIGHT SATURDAY A & P SUPER MARKET

Two grocery stores tied in with Larsen Co.'s ad in daily paper.

Each woman who asked, received receipies for canned foods.

of the casserole and the work of the demonstrators.

Displays were built in all of the stores. Card tables were used for the demonstrations. Larsen Co. supplied some posters of its Freshlike brand of peas and corn. In one store that did not stock the Freshlike brand, two volunteers from the Larsen plant found themselves building a canned food display out of cans with a competitive label.

But the purpose, decided long before by the Larsen Co., was not to treat this as a merchandising promotion.

Customers Liked it

The demonstrations went smoothly. Some of the 4-H girls did not have the professional competence of the trained demonstrator, but most made up for lack of experience with enthusiasm. One girl, casually dumping cans of peas into the carts of her friends, warned, "don't take them out."

The average customer coming into the store that morning was stopped and offered a sample of a hot dish made from tuna fish, peas, and corn. It had cracked potato chips on top. The demonstrators could sprinkle on new chips when the top ones began to look soggy.

After she tried a sample—it was a dish that could be heated up repeatedly and that kept well—the customer was offered a folder of recipes. These recipes had been collected from the U. S. Department of Agriculture, the Wisconsin Canners Association, the National Canners Association, and the Larsen Co.

Then, if she were interested, the customer could pick up a can of peas or corn from the display. No special price deals were used. However, one store had been selling a 10c can of peas (not Freshlike) and featured it in his Thursday advertisement.

What Happened?

The demonstrators who worked from 4 to 8:30 p.m. on Friday and from 9 a.m. until noon on Saturday handed out hundreds of recipes, hundreds of samples. Supplies of corn and peas began to run short on Saturday and two emergency lots from the Larsen plant were rushed to the stores.

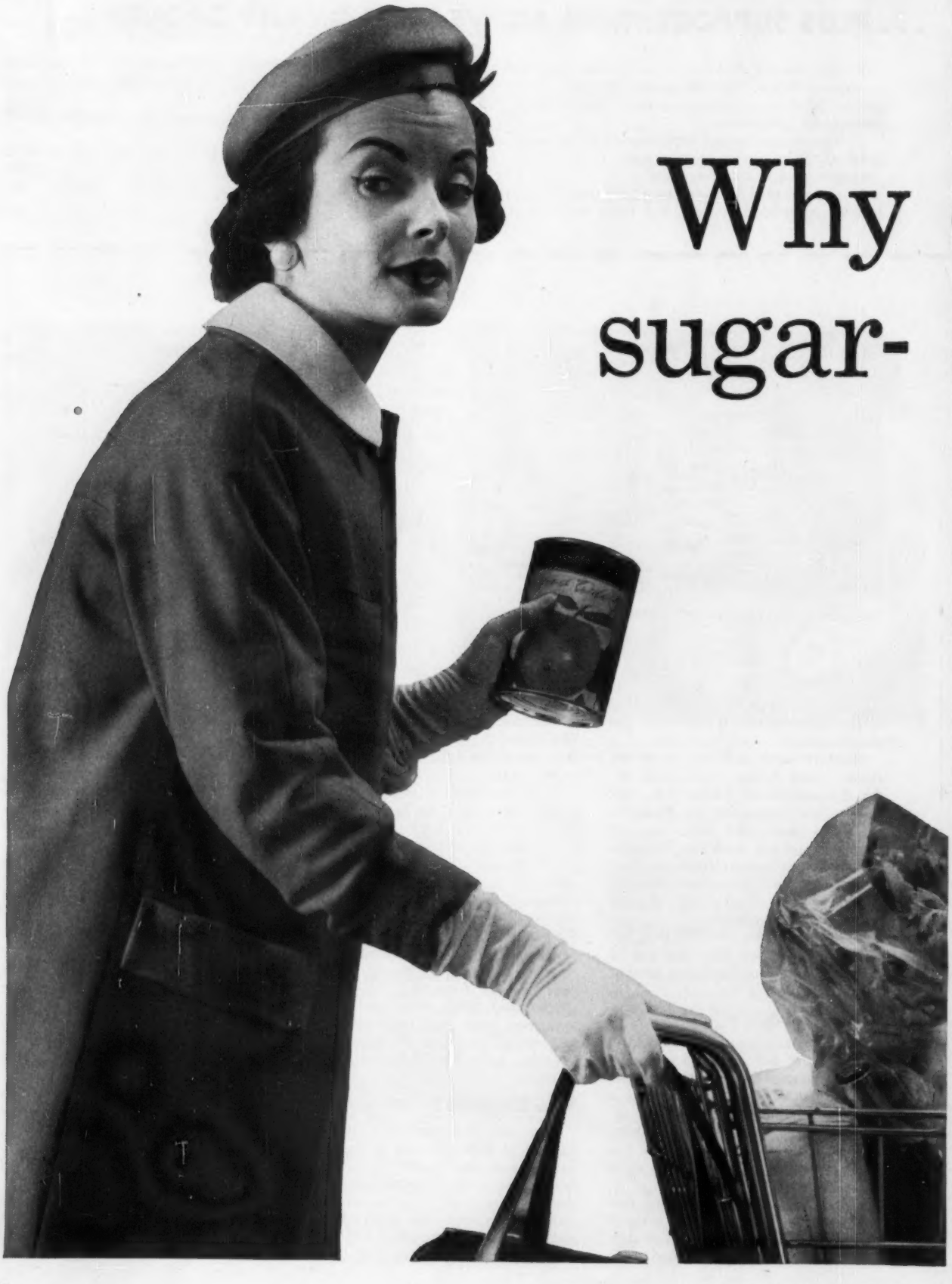
Women were interested. Harley Von Haden, publisher of the once-a-week Fort Atkinson Reminder, reflected afterwards, "That thing really got rolling." Comments were still being received two months later by Larsen employees.

Larsen Co. did not try to push its Freshlike brand. Despite this, there were several side effects. Many local people became acquainted with the Freshlike brand as a home product for the first time. Several of the grocers in town began stocking Freshlike brand or else increased the number of items.

The cooperation between the Larsen Co., and the Farm Bureau made a success story to tell growers in the Farm Bureau paper.

The newspaper had kind words for the promotion. Bob Angus, editor of the Union, said in an editorial, "The goal of course will be to encourage increased use of canned foods, especially peas and corn."

"And there are indications that if it proves successful here, it may be used as a pattern for similar projects elsewhere."



Why sugar-

customers pick sweetened canned fruits 21 to 1*

Just because millions of people are watching their weight doesn't mean that they need, want, or will buy synthetically sweetened packs. A new super market study shows an overwhelming preference for sugar packs.

People cite better flavor as the big reason why they prefer fruits packed with sugar. There's another reason, too. Sugar's informative advertising constantly reminds people that there is no such thing as a "fattening food" or a "reducing food." The best foods to select for a weight-control diet are the same foods normally bought for the family meals.

1,579 SALES PER WEEK
in typical super market averaging $24,000 a week in volume
*75¢ gross profit per foot of shelf space**

73 SALES PER WEEK
in same type store
*29¢ gross profit per foot of shelf space**

SUGAR INFORMATION, INC.
NEW YORK 5, NEW YORK

SUGAR means sucrose (beet or cane sugar)

**Source: Progressive Grocer's "Super Valu Study." Complete study now being repeated in monthly installments in Progressive Grocer, the magazine of super marketing.*

Hanover Canning Co. Eliminates Dry Bean Soaking

Checking quality of Hanover's pork and beans are, from left: Warren Anderson, Hanover QC supervisor; L. V. Savino, production manager; J. W. Fullerton, vice-president; and Charles Walsh, QC technologist at the Hanover plant.

Continuous blanching technique, substituted for traditional soaking of dry beans, allows close control over daily packing schedule even during most of the heavy, seasonal vegetable pack

The Hanover Canning Co. uses a continuous, automatic blancher for year-around processing of dry pea beans and kidney beans. Fresh peas and cut green and wax beans are blanched through the same system during the seasonal pack.

The blancher was designed and installed to give maximum versatility and production control to this progressive Eastern Pennsylvania vegetable canner. Precise time and temperature control on all blancher operations is achieved with instrumentation.

Hanover Vice-President J. W. Fullerton said the blancher cost about $5,000. He went on: "It would take 10 big soak tanks to handle the same volume of beans we handle with our present line. These would cost at least $20,000. We not only have very low overhead with this blancher but also it gives us virtually instantaneous control over our processing. For instance, in three consecutive shifts we can pack one shift each of green beans, fresh peas, and dry beans. It takes us no more than 10 minutes to change from one product to another."

Pipes on Wall

Physically, the blancher is simply two series of tubes, each mounted high on opposite walls of the company's huge processing room. Each series consists of 700 feet of four-inch steel tubing. Pipes connect the two series, permitting beans or other products to pass through either side or both sides of the blancher. Pea beans and kidney beans need a longer blanch than fresh products, for example, so they are pumped through both series. Fresh beans and peas go through only one side.

A third blancher, made of six-inch pipe, is used only to blanch whole green beans.

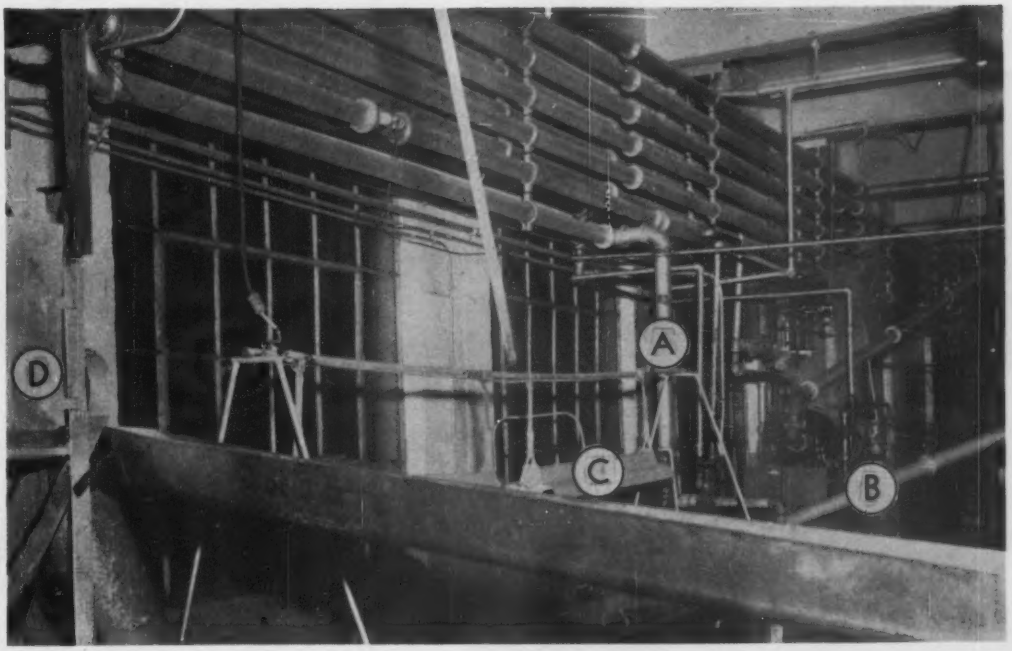
Variable speed pumping permits speed and temperatures of the blanching process to be changed quickly and over a wide range, thus adding to the versatility of the new system. Temperature range is from 170° to 200°. The blancher's capacity varies from 3,000 to 6,000 lbs. per hour, depending on the product and ultimate container size.

The beans enter the blancher at 15% and contain 47% moisture when they emerge from it. The blancher action is simply one of plumping up the dry beans.

Another advantage of the continuous system compared with soak tanks, according to Production Manager Les Savino, is that it is easy to start and stop the work day on a fairly rigid schedule. Hanover packs dry items around the calendar except during the heavy green bean and tomato season in August and September.

"We simply turn 'production' on in the morning and off in the evening," Mr. Savino said.

Still another good point about the blancher is that it is cleaned by re-



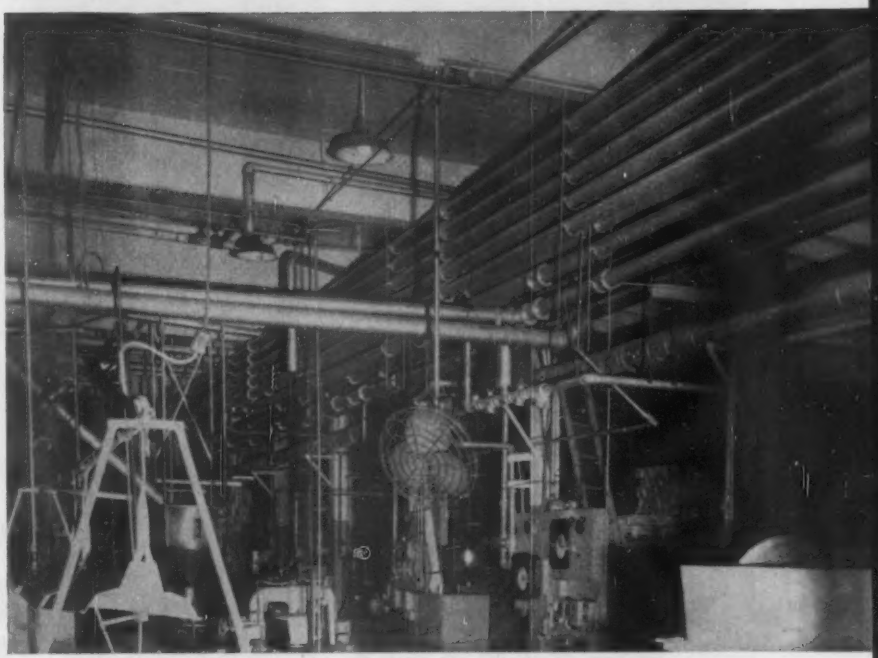
Pipes along wall are one of two Hanover tubular blancher units. Pipes total 700 ft. Beans leave first dewaterer (D), then pass over inspection belt (C), fall into sump (not shown) from which they are pumped through either pipe A or B to one or both sides of the tubular blancher.

circulation in place. Nothing is disassembled. At noon of each work day the tubes are rinsed through with hot water. At the end of the shift they are cleansed thoroughly with steam and cleaning agents. "This automatic cleaning saves much time and is a definite low-overhead factor," Les Savino said.

The operation on its PORK N' BEANS starts by dumping the dry beans into overhead feeding hoppers. From these hoppers they pass through an 18-ft. riffle board which is mainly a destoning device. As they leave the riffle board they pass through a dewaterer and fall onto an inspection belt where inspectors remove any remaining foreign material. Incidentally, all dry-pack products going through the plant use this same riffle board, dewaterer, and inspection belt. Hanover officials use this as an example of how they can cut overhead still further and achieve even greater efficiency.

The beans roll from the end of the inspection belt into a sump from where they are pumped to one of the series of blancher tubes. They enter the bottom of the blancher and are forced upward, thus the tubes are always full. The heater is located about 20 feet from the inlet end of each blancher series.

Then, still in a continuous process, the beans are pumped into a dewatering and desplitting machine, which removes any split beans and skins and of course the water. From this machine the pea beans repeat the same process through the second series of blancher tubes. They then pass through the dewatering and desplitting machine again and fall by gravity into the bowl of the filler.



Horizontal pipes in center of picture are inlet pipes for the product. Note automatic control panel at lower right.

During the dry-pack run, and depending on the products being packed and the container size, either one or two high-speed packaging lines are operated. The entire operation is well synchronized.

Although the big-volume dry and fresh vegetables go through the continuous blancher, Hanover does soak some dry-pack vegetables, including butter beans, pink beans, blackeye peas, and chick peas. These are soaked because the company says it would not be efficient to blanch them in the continuous blancher.

The company uses continuous USDA inspection in the seasonal pack.

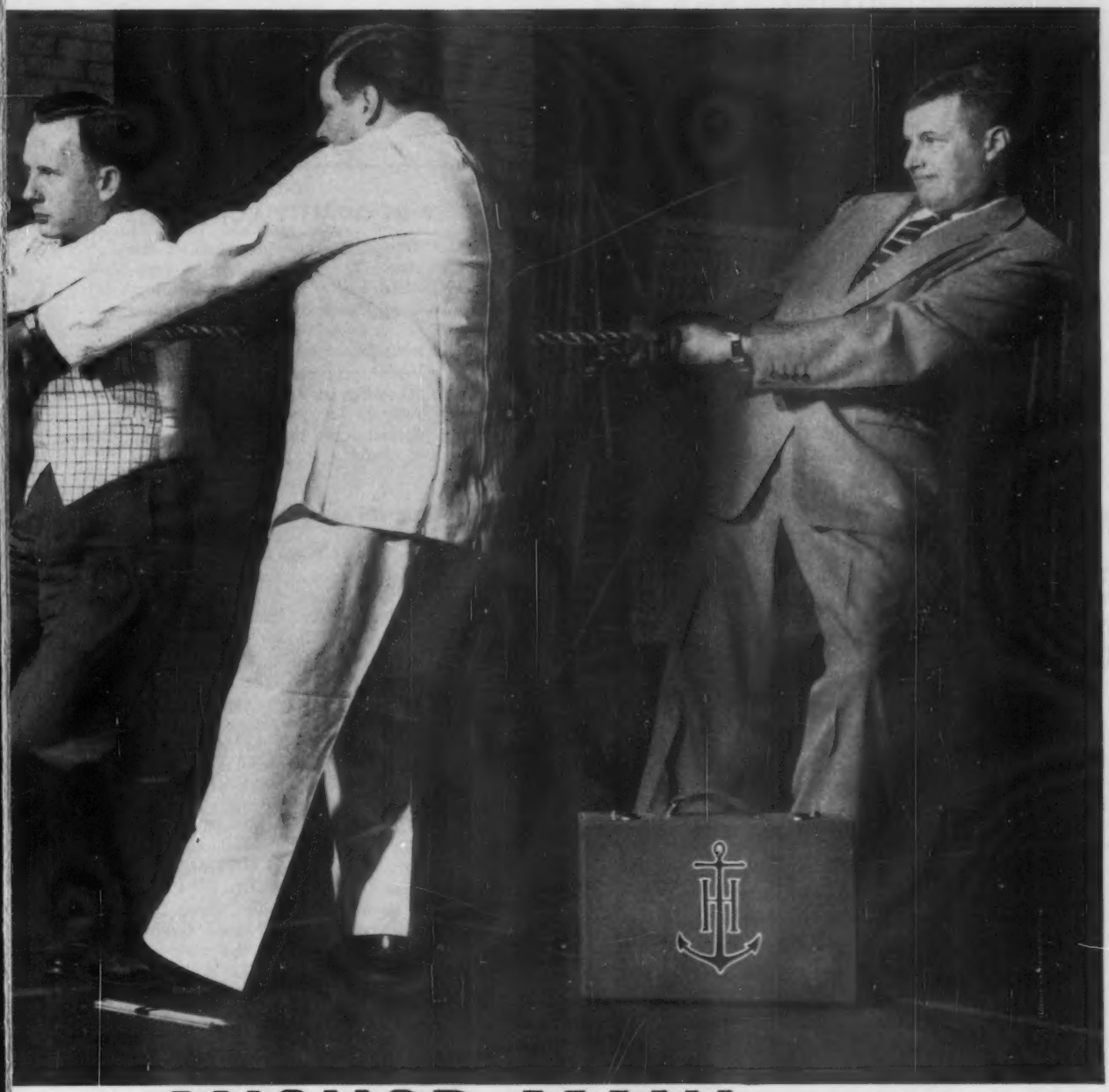
Bacteria checks are made on the continuous blancher once a week dur-

(*Continued on Page 35*)

A PACKAGING TEAM NEEDS

The package can determine the success of a product. And so important has the packaging factor become that more and more companies are making packaging decisions through *teamwork.* Specialists from various departments offer their know-how and experience. But to make a packaging team complete, it needs an outside viewpoint.

It needs an Anchor Man. The Anchor Man is a glass packaging expert who has helped solve hundreds of packaging problems and who can help solve yours through this wide experience. And if you should need it, your Anchor Man can bring you the help of Anchor Hocking's extensive Package Engineering and Research Division.



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Contact your Anchor Man soon. We know you'll like his quality-controlled Anchorglass® containers, dependable Anchor® closures and sealing machines. We know you'll like his service. We know you'll want him on your team, too. Anchor Hocking Glass Corporation, Lancaster, Ohio. Branch offices in all principal cities.

ANCHOR HOCKING
Glass Containers and Closures

WILBUR A. GOULD, PH.D.

Ohio State University

Quality Control Editor

Quality Control Clinic

'SELECTION OF THE PROPER VARIETY IS THE FIRST STEP IN QUALITY CONTROL'

This article concludes this series of summaries of variety evaluation of vegetables for canning. Similar data for corn and beans are available for these varieties from a freezing standpoint, however, because of space these data are not presented at this time.

In summary, the selection of the proper variety for processing is the first step in any up-to-date quality control program. The comments and summarized tabular data for these varieties are presented to illustrate points that should be considered in a variety evaluation program. Every processor of vegetable crops should set-up variety trials in his own particular areas. A variety may look good in one location, but not always the same in another. Further, field trials and observations are only part of the story. The variety must be processed for its full and true evaluation. The answer to the question, "How does it show in the can," is most important. Small investments by the processor in trial plots and following through to get the answer to this question will pay big dividends in the future. — Wilbur A. Gould.

New Snap Bean Varieties Bring Consumer Approval

Gould shows points of quality in five snap bean varieties

The increasing popularity in recent years of processed snap beans emphasizes the fact that the plant breeders have developed new varieties of snap beans with higher quality. Some of these varieties have been discussed in this column in recent years. This past year we included the following varieties: Regular Tendergreen, White Seeded Tendergreen, Processor, Topmost, and three new numbered lines from the Woodruff Seed Co.

The summarized data for each variety are presented in Tables 1 and 2. As with all our variety evaluation work for processing, several harvests of each variety are made. For each harvest the percentage sieve size, percent by weight of seeds, pod length and width, calculated Growth Degree Days (base temperature of 50°F.) and yield are reported. The grade determined in accordance with the USDA Standards for Grades of Canned Snap Beans (March 2, 1953) on the resulting canned product by style of pack for the various sieve size are reported in Table 2.

Specific comments on each of the varieties in the trials this past year are as follows:

TENDERGREEN — A very good variety and the standard in our trials over the years. One serious drawback to this variety is that it has dark colored seeds and at the more mature stages, discoloration to the "liquor" is noticeable.

WHITE SEEDED TENDERGREEN — Slightly earlier than Regular Tendergreen; not quite as heavy a yielder, but outstanding quality in the canned product. As the name implies, it has white seeds at full maturity. At the

(*Continued on Page 34*)

Variety	Harvest	% Sieve Size 1-3	% Sieve Size 4-6	% Seeds	Ave. length Pods (in.)	Average Width (in.) Pods (32nd)	Growth Degree Days	Yield Tons/Acre
Tendergreen	1	66.7	33.3	3.2	3.75	10	1149	1.60
	2	47.4	52.6	6.4	4.2	11	1205	2.53
	3	9.7	90.3	17.6	4.3	14	1396	3.57
White-seeded Tendergreen	1	50.0	50.0	5.2	3.75	13	1149	1.20
	2	38.2	61.8	4.5	3.6	12	1228	2.01
	3	13.3	86.7	12.0	3.5	12	1337	3.07
	4	3.9	96.1	11.4	3.5	14	1427	3.38
S5608	1	x	x	1.7	3.4	8	1185	0.40
	2	26.8	73.2	3.0	4.7	12	1309	2.45
	3	5.4	94.6	6.0	4.5	11	1367	2.84
	4	4.7	95.3	5.6	3.7	15	1427	3.47
S14805	1	x	x	2.3	3.8	8	1185	0.46
	2	21.2	78.8	10.6	3.7	13	1309	2.03
	3	6.9	93.1	5.8	4.0	11	1337	2.49
	4	8.5	91.5	16.0	3.8	15	1396	2.10
S14304	1	77.8	22.2	5.7	3.25	7	1149	1.41
	2	45.5	54.5	3.6	3.8	11	1205	2.32
	3	20.9	79.1	14.2	3.9	13	1396	2.74
Processor	1	76.5	23.5	2.7	3.2	8	1185	1.10
	2	50.0	50.0	5.4	4.0	12	1309	2.22
	3	21.4	78.6	12.2	3.7	12	1367	3.15
	4	26.4	73.6	9.8	4.1	12	1427	2.33
Topmost	1	56.5	43.5	3.5	3.4	7	1149	1.52
	2	22.2	77.8	2.3	4.2	12	1228	1.81
	3	5.6	94.4	11.6	4.8	15	1367	3.74

x These lots were processed as field run and percent sieve size was not determined.

Table I — Raw product data is given on snap beans by variety and harvest.

What's New?

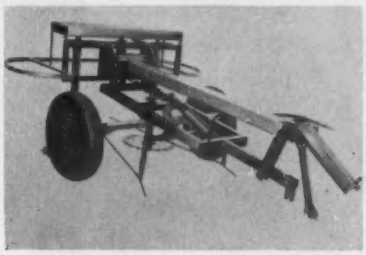
Supplies • Equipment • Trade Literature

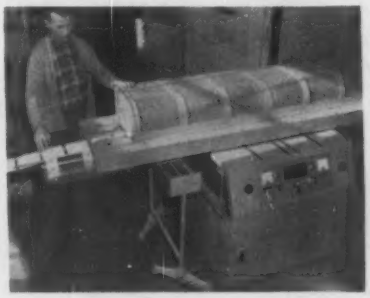
Lima Bean Cutter

A new machine, which cuts the roots of lima beans in preparation for harvest rather than pulling them, has been announced by the H. D. Hume Co., Dept. FP, Mendota, Ill.

The two circular cutting discs, fitted with sickle sections, cut just below the surface of the ground. Vine lifters windrow the vines. The entire frame swings rearward and returns if the blades hit a rock.

According to the manufacturer, the machine reduces pod damage, and leaves the product easier to load and easier to wash inside the plant.





Cold Glue Sealer

A machine making it possible to use cold glue for sealing paraffin-coated cartons has been designed and built for the frozen food industry by Container Corporation of America, Dept. FP, 38 So. Dearborn, Chicago, Ill.

The new machine called the Concora Sealer, turns out 100 cartons of frozen fish sticks per minute.

A special cold glue is applied to the flaps of the carton before it enters the compression unit, in which the glue and the paraffin coating are welded into a solid bond by an electrolytic process.

The Concora Sealer combines with packaging line facilities, such as forming and loading machines, and occupies no more space than the conventional overwrapper. It requires no long compression unit or refrigeration equipment.

The machine is available for leasing to companies in the frozen food industry.

Dispersion Mill

The PUC Multistage Dispersion Mill representing a completely new and improved method for wet milling and grinding, homogenizing, dispersing, emulsifying and extracting, has been marketed by the Pfaudler

The wraps are off! It's production line proved!

You can now get extremely

CLEAN-CUT **DICED Broccoli**

(OR ANY OTHER LEAFY PRODUCT)

on the URSCHEL Model **F DICER**

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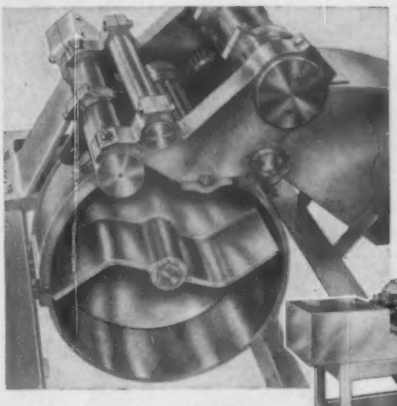
- This new engineering achievement produces the cleanest possible dice cuts on Broccoli and other hard-to-cut leaf products . . . gives them a new "beauty treatment" . . . a new eye and taste appeal consumers will appreciate.
- Unit has ample capacity for Broccoli line.
- Dices sizes of 1/8"x3/16"x3/8"— 3/8"x3/8"x3/4"— 3/8"x3/4"x3/4", also 3/8" cubes.

Write today for complete information



Above: enlarged view of the new "Impeller" on the Model F unit.

Parts are now available for converting your present Model F to this new operation.

Urschel Model F Dicer

PRECISION HIGH-SPEED FOOD CUTTING EQUIPMENT

URSCHEL LABORATORIES INC.

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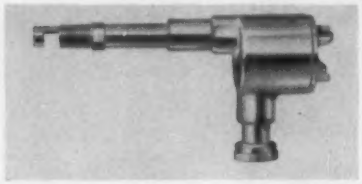
Designers and manufacturers of precision, high speed cutting equipment for food products

Co., Dept. FP, 1000 West St., Rochester, N.Y.

The new mill serves as its own pump, drawing material down through a multistage grinding area to present sizes and then ejecting the product under pressure. The mill operates either on a continuous throughout basis so that it can be tied into lines or it can be used for batch operations with or without re-cycling facilities.

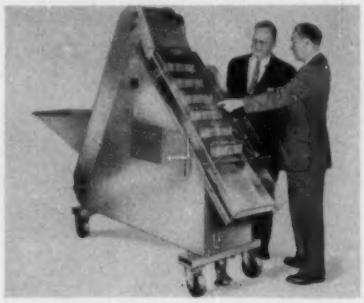
The PUC mill has application in the food processing industry for such diverse operations as the preparation of emulsions, dispersions or pastes, blending of essential oils, fruits and other flavors into foods and beverages, and the production of mayonnaise and salad dressings, chocolate syrups, and toppings.



Liquid Level Sensor

Betatrol, a liquid level sensor which utilizes a radioactive material in the sensing element has been introduced by the Aeronautical and Instrument Division of Robertshaw-Fulton Controls Co., Dept. FP, Anaheim, Calif.

Designed to provide an actuating signal to control or indicate a predetermined level, the unit employs beta radiation to furnish the benefits of nuclear research for more reliable and accurate industrial intrumentation.

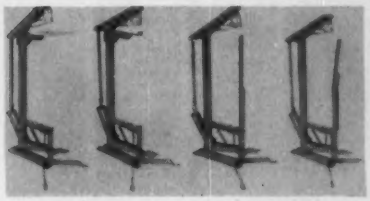


Pickle Perforator

An electronic pickle perforator has been developed by Standard Metal Products Co., Dept. FP, 13 N. Racine Ave., Chicago, manufacturer of food processing equipment. Hundreds of microscopic piercings penetrate clear through cucumbers and other food products as they are passed through the machine. These piercings let out gases to reduce the number of "floaters" and let in sweetening juices. Curing time is cut from weeks to days.

Electronic perforations reduce shriveling of products, whether they are cured in tank, barrel or bottle.

The new perforator is made of stainless steel for easy cleaning and low maintenance. Completely portable, it is mounted on heavy duty casters. It handles up to 10 bushels per minute, depending on the size of the pickles. Electrodes can be adjusted to permit most effective perforating of large or small products. Operates on 220 volts.



Foot Operated Staplers

A new group of foot-operated Duo-Fast staplers has been introduced by Fastener Corp., Dept. FP, Franklin Park, Ill.

One of the four models is a solid post model for stapling carton bottoms. It has a 10" reach with a 24-inch

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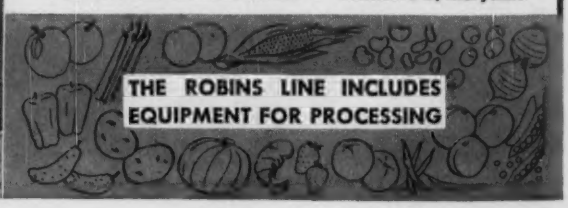


The Importance of STRATEGIC LOCATION

Before attempting to reach their goal, high-altitude mountain climbers set up a series of intermediate camps along a carefully preselected route. These supply depots serve as "steps" for the final assault on the summit.

With modern plants established in three major market areas, Metro, too, has long realized the advantages of strategic location. From these plants it serves packers of soluble coffee, jams and jellies . . . brewers, vintners and distillers . . . bottlers of household chemicals and other diversified products. Each of these customers has found that efficient, flexible METROmatic service assures a quality product, delivered on an unfailing schedule ideally suited to his production requirements.

METRO GLASS COMPANY, INC.

MANUFACTURERS OF QUALITY GLASS CONTAINERS

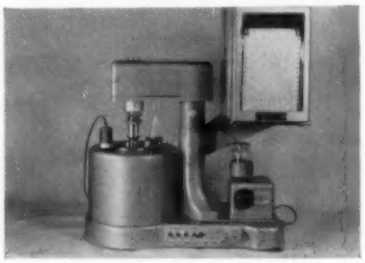
WASHINGTON, PA. JERSEY CITY, NEW JERSEY CHICAGO, ILL.

deep post. The second has a hinged post which allows a greater clearance for inserting cartons into position. The third is called the straight arm model and is especially suited to stapling flat cartons, telescopic cartons and corrugated fillers. This model also has a 10-inch reach.

Automatic Case-Transfer

J. L. Ferguson Co., Dept. FP, Joliet, Ill., has an integrated automatic, case-transfer mechanism which handles up to 20 cases per minute on a line where cases are hand formed.

A Packomatic case-opener unit can be synchronized with existing case-loading equipment to give a completely automatic case packaging line. One attendant keeps the magazine loaded with knocked-down, corrugated containers. The combined machines open and form corrugated containers, position them, load them, and seal them – fully automatically.



Starch Viscometer

A new viscometer for measuring and recording the consistency of starch pastes has been developed by Gaertner Scientific Corp,, Dept. FP, 1201 Wrightwood, Chicago. It has been adopted as the standard testing instrument for the starch industry by the Corn Industries Research Foundation.

The instrument consists of a stainless steel beaker immersed in a temperative-controlled water bath. A propeller, driven through a gear system, stirs the paste placed in the beaker. As the water temperature is raised, the viscosity of the paste varies and the changes cause the propeller to turn slower or faster. The differential torque is transmitted to a dynamometer and is registered as a pen trace on a continuously moving paper graph recorder.

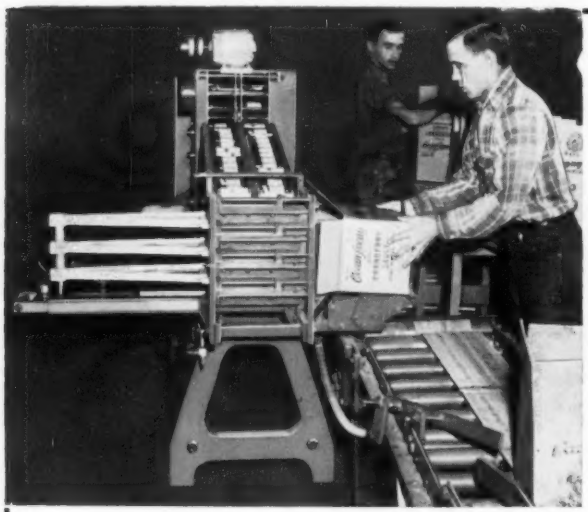
A gelometer attachment is available for use with the viscometer. This gel tester uses the embedded disk method of measuring rigidity and breaking strength of gels.

Conveyor Coupling

The "Quick-Eez" coupling developed by E. W. Buschman Co., Dept F, Clifton and Spring Grove Avenues, Cincinnati 32, Ohio is engineered for fast and economical set-up of wheel and roller conveyors.

The ends of the conveyor sections are identical; each section is a complete unit independent of adjoining ones. Tedious end-for-end shifting is eliminated and conveyor set-up time is cut to a minimum.

Wheel and roller conveyors are equipped with extended end plates. These fit down into slotted tops of the tubular stands, which are the actual coupling elements. All-steel coupling eliminates hook rods and is available for both straight and curved mobile conveyor sections. Conveyor stands available in 4 sizes with adjustable heights from 12 in to 48 in.



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High Speed Case Packer
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The Market Place

News of Promotion and Selling

Courtesy Owens-Illinois

Champagne Wine Vinegar

Newest addition to wine vinegars produced by Ellena Brothers Winery, Etiwanda, Calif., is the Regina Champagne Stock Wine Vinegar. It is bottled in a decanter-style container which has a blown in trade mark design and ceramic labels with recipes on the neck band.

New Cap for Beets

The Lohmann Food Corp. of Gorham, N. Y. introduced a new deep lug cap on its line of beet products.

Courtesy Owens-Illinois

Apple Jelly

Blue Plate Foods, Inc., New Orleans, La., is packaging clear Pure Apple Jelly in three size jars, 12 ounce, 20 ounce and 2 pound. The label features a color reproduction of an apple with brand and product names appearing in blue, red, grey and black on a white background.

Courtesy Owens-Illinois

Tomato Cocktail

College Inn Food Products Corp., Chicago, is marketing its tomato cocktail in a re-designed package. The new container being used has a tapered base with circular ribs at the shoulder to permit easy handling. The label emphasizes brand and product identity along with a colorful illustration of the ingredients used in the manufacture of the product.

Five Nalley's Dressings

Five new dressings were introduced by Nalley's, Inc., Tacoma, Wash. They include Russian, French Bleu Cheese, Sweet & Sour, Fruit Salad and Italian.

Cost System

(Continued from Page 16)

products may result in the same profit per ton and per hour. In many cases, such as the one illustrated below, the product combination which results in maximum profit per ton will differ from the combination which results in maximum profit per hour. This can be illustrated by calculations based on the following table.

Item	Selling Price*	Total Prime and Variable Costs*	Gross Case Margin (1)-(2)	Yield (Cases per ton)
	(1)	(2)	(3)	(4)
2½ Std.	4.42	3.13	1.29	27.1
2½ Ext. Std.	5.04	3.24	1.80	25.8
#10 Std.	3.73	2.56	1.17	29.4
#10 Ext. Std.	4.00	2.65	1.35	27.9

Item	Gross Ton Marginal (3) x (4)	Capacity Production Rates (Cases per hour)*	Gross Hourly Margin* (at Capacity Production Rates)
	(5)	(6)	(7)
2½ Std.	34.96	195	122.15
2½ Ext. Std.	46.44	80	144.00
#10 Std.	34.40	140	163.80
#10 Ext. Std.	37.65	140	189.00

*All figures in dollars per case.

With the quality of tomatoes available, the manager attempted to allocate his raw stock about equally between #10 and #2½ tomatoes per hour. When the plant was operating at less than capacity the financial results from the two alternative output combinations were as follows:

(a) Item	Gross Ton Margin	(b) Item	Gross Ton Margin
2½ Ext. Std.	46.44	2½ Std.	34.96
#10 Std.	34.40	#10 Ext. Std.	37.65
	80.84		72.61

Thus, when operating at less than capacity it will be more profitable in this plant, as presently organized, to pack combination (a).

When, however, the plant is operating at capacity the financial results from the two alternative output combinations were as follows:

(a) Item	Gross Hourly Margin	(b) Item	Gross Hourly Margin
2½ Ext. Std.	144.00	2½ Std.	122.15
#10 Std.	163.80	#10 Ext. Std.	189.00
	307.80		311.15

Thus, when operating at or near capacity, it will be more profitable for the plant, as presently organized, to pack combination (b).

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Ball Packaging Counselors . . . backed by technicians, designers, and engineers . . . will gladly assist you in developing the right package for your product — one that will safeguard its quality until it reaches the consumer . . . give it sparkling individuality, new "reach-for" appeal. Get in touch with your nearest Ball representative for the finest glass containers, metal closures, complete Packaging Counsel.

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Freezing News

Promotion • Selling • Research

Seabrook Leases Minute Maid Plant

Minute Maid Corp. and Seabrook Farms Co. have announced the signing of an agreement under which Seabrook will assume operation of Minute Maid's Lewiston, Idaho frozen pea plant.

In this plant, Minute Maid has processed and packed Snow Crop "Mountain-grown Peas" since 1955. Seabrook will continue to use the plant to pack peas under the Snow Crop label, which it acquired under franchise from Minute Maid last November.

Employing approximately 250 persons during the pea season, which usually runs from June into early August, the production capacity of the Lewiston plant is about 20,000,000 pounds per season.

Minute Maid President John M. Fox and Seabrook President John M. Seabrook recently visited Lewiston to explain the transaction to pea growers and plant employees. At that time, it was stated that all present plant employees will be retained.

Clarence Hein will manage the operation in addition to overseeing other Seabrook West Coast activities. Gerald McNichols will continue in charge of the field department. Lester McIntire will be in charge of factory operations, while Jack Springer remains as office head.

Wrapless Carton

New sift-proof carton without overwrap has been adopted for five frozen pies of Kermin Frozen Food-Products Co., of Los Angeles.

Each carton features a full color illustration on the front panel of the pie with a portion of the crust removed to expose its contents.

A high gloss wax finish is used to coat the wrapless package and to protect it against moisture.

Organize Frozen Potato Products Association

Frozen Potato Products Institute was organized at a recent meeting held in Chicago. The group is made up of firms processing nearly 100% of the total volume of frozen potato products.

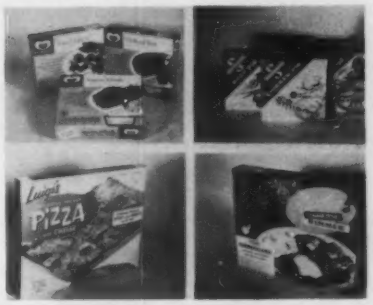
Directors elected by institute members are: Leon C. Jones, J. R. Simplot Co., Caldwell, Idaho; F. Nephi Grigg, Ore-ida Potato Products, Inc., Ontario, Oregon; F. Webster Browne, Snow Flake Canning Co., Brunswick, Maine; Manning Exton, Seabrook Farms Co., Seabrook, N. J.; and G. R. Squires, Cedergreen Frozen Pack Corp., Bellingham, Wash.

—Courtesy Western-Waxide Div., Crown Zellerback Corp.

Frozen Meat Pies

Spartan Stores, Inc., Grand Rapids, Mich., has introduced a new line of frozen beef, chicken, and turkey pies.

Featuring the Spartan warrior seal, the overwrap shows an oven-browned pie against coral pink for turkey, cinnamon brown for beef, and fez red for chicken.



Food Package Awards

In the annual carton competition sponsored by the Folding Paper Box Association of America, twenty-three food packages received awards. They were among the 100 best cartons of the year announced at the Association's recent annual meeting at the Waldorf-Astoria hotel in New York.

Winners selected by a jury of 21 experts included four frozen food distributors.

They were Naples Foods Inc., Campbell Soup Co., Pizza Frozen Foods, Inc., and John Morrell & Co.

German Hasenpfeffer

Introduction of heat and serve frozen "German Hasenpfeffer" on a nation-wide basis has been announced by H. F. Pelphrey & Son, Rogers, Ark.

Armed Forces Purchasing

Around $72 million worth of frozen foods was purchased for the Armed Services during 1957. The cost (which includes transportation) by categories is: seafood $13 million, poultry $42 million, fruits, vegetables and juices, $18 million.

Freddy the Freezer treats 'em right
You're lucky. You're headed for Freddy. He treats you right.
He'll protect your delicate color and luscious flavor with pure vitamin C from Roche®.
My bakery and ice cream customers know my peaches never brown during thawing. And the same amount of vitamin C allows a label claim on my retail packages.
This is how my label reads:
Freddy's Frozen Fruit
One 4-ounce serving provides 100% of the minimum daily adult requirement of vitamin C.
You should treat 'em right, too. Find out how from the
VITAMIN DIVISION
Hoffmann-La Roche Inc.
NUTLEY 10, N. J.

Variety	Harvest	Sieve Size	Style	Liquor[1]	Color[2]	Absence of Defects[3]	Maturity[4]	Total Score	% Fiber	U.S. Grade
Tendergreen	1	1-3	whole	8	14	35	38	95		A
Woodruff C-8104	2	1-3	whole	9	14	35	38	96		A
	3	1-3	whole	6	14	35	38	93	.140	C
	1	4-6	cut	7	13	35	35	90	.072	A
	2	4-6	cut	7	13	35	36	91	.082	A
	3	4-6	cut	4*	13	32	28*	77	.162-	D
White-seeded	1	1-3	whole	10	14	35	39	98		A
Tendergreen	2	1-3	whole	10	14	35	38	97		A
Woodruff 48855	3	1&2	whole	10	14	35	39	98		A
	4	1-3	whole	10	14	35	38	97		A
	1	4-6	cut	9	14	35	35	93	.058	A
	2	4-6	cut	10	14	35	35	94	.084	A
	3	3&4	whole	10	12	35	34*	91	.135	B
	3	5&6	cut	10	14	35	28*	87	.322 -	D
	4	4-6	cut	9	14	35	28*	86	.422-	D
B GO-823	2	1-3	whole	9	14	35	38	96	.110	A
Woodruff S5608	3	1-3	whole	10	14	35	39	98		A
	4	1-3	whole	10	12	35	36	93		A
	2	4-6	cut	10	14	35	35	94	.184-	D
	3	4-6	cut	10	13	35	36	94	.172-	D
	4	4-6	cut	9	13	35	33*	89	.204-	D
B GO-822	2	1-3	whole	10	14	35	38	97	.085	A
Woodruff S14805	3	1-3	whole	9	14	35	39	97	.100	A
	4	1-3	whole	10	14	35	35	94		A
	2	4-6	cut	9	13	35	30*	87	.280-	D
	3	4-6	cut	10	13	35	28*	86	.202-	D
	4	4-6	cut	9	13	35	26*	83	.416-	
B GO-818										
Woodruff S14304	1	1-3	whole	9	14	35	38	96		A
	2	1-3	whole	10	14	35	38	97		A
	3	1-3	whole	10	13	35	35	93	.130	A
	1	4-6	cut	9	14	35	35	93	.139	A
	2	4-6	cut	10	14	35	35	94	.109	A
	3	4-6	cut	9	12	35	32*	88	.200-	D
Processor	1	1-3	whole	9	14	35	38	96		A
Ferry-Morse	2	1&2	whole	10	13	35	38	96		A
	3	1-3	whole	10	13	35	34*	92	.087	B
	4	1-3	whole	10	12	35	35	92	.125	A
	1	4-6	cut	9	13	35	35	92	.087	A
	2	3&4	whole	9	13	35	33*	90		B
	2	5&6	cut	9	12	35	30*	86	.075	B
	3	4-6	cut	9	11*	35	23*	78	.198-	D
	4	4-6	cut	9	13	33	33*	88	.250-	D
Topmost	1	1-3	whole	10	14	35	35	94		A
Associated	2	1-3	whole	10	14	35	37	96		A
	3	1-3	cut	9	13	35	29*	86		B
	1	4-6	cut	10	14	35	35	94	.015	A
	2	4-6	cut	10	13	35	34*	92	.124	B
	3	4-6	cut	9	13	35	28*	85	.150	C

- Maximum fiber for bottom Grade C is 0.15%.
* Indicates limiting rule within classification.
1 Maximum score 10 points. A, 9-10; B, 7-8; C, 5-6; D, 0-4*. - U.S.D.A. score points
2 Maximum score 15 points. A, 14-15; B, 12-13; C, 10-11*; D, 0-9*. - U.S.D.A. score
3 Maximum score 35 points. A, 32-35; B, 27-31; C, 22-26*; D, 0-21*. - U.S.D.A. score
4 Maximum score 40 points. A, 35-40; B, 29-34*; C, 23-28*; D, 0-22*. - U.S.D.A. score

Table II – USDA grade and score value for canned snap beans are given by variety and sieve size.

Quality Control Clinic

(*Continued from Page 26*)

mature stages, the seeds are still under the 25% USDA by weight limit, however the fiber is in excess of the tolerance of 0.15%. Therefore, a processor must check the fiber content of this variety in order to stay within the grade limitations. It should be emphasized that the fiber accumulates rather rapidly at the mature stages.

PROCESSOR – This variety is one of the best from the standpoint of large percentage of the harvested crop with small size beans. It is slow in maturing or stated another way, it holds well in the field. It is a reasonably good yielder and shows very well in the can. Again with this variety, fiber becomes a problem with the later harvests for the larger sieve sizes.

TOPMOST – This is a very good variety, except that the pods are rather large even at the earlier harvest. That is, a high percentage of this variety at the early harvests are 4 to 6 sieve beans. When compared to the other named varieties for the small sieve size at the earlier harvests, it is the poorest of the group. Further, it is not a particularly heavy yielder until the later harvests and then nearly all the harvested crop is of the larger sieve size. However, the canned product is of very high quality and at the later harvests for the larger size beans, fiber is not a serious problem. Some "sloughing" was noticeable in the younger beans.

WOODRUFF STRAINS – Of the three new strains developed by Woodruff Plant Breeders, Strain S 14304 is quite outstanding. It is in the same class as Processor as to its ability to hold in the field and produces a large per-

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centage of the smaller sieve sizes. The seeds are quite small at the mature stages. The pods are the smallest of this group of varieties. Comparatively speaking, it is a good yielder. From a quality standpoint, it rates at the top of the list of these varieties, except at the most mature stages. As with most of these varieties, fiber becomes a problem here. The other two strains have too large a percentage of large sieve sizes at the early harvests for canning as whole beans. Further, they are very fibrous and probably should not be recommended for canning even as cut snap beans.

Dry Bean Line

(*Continued from Page 23*)

ing the winter and daily during the seasonal pack. Samples of beans during processing are pulled from the line regularly during the day and checked. The final product is analyzed several times daily, also.

Raw beans are checked for moisture, splits, quality, etc., as they arrive at the plant. The sauce going into pork and beans is tested regularly by refractometer to make sure all ingredients, and their proper quantities, are present in the mixture.

Says Alan Warehime: "We specialize in preventive quality control, instead of corrective control. That's much cheaper than shutting down the plant and destroying the product if something goes wrong. We leave nothing to chance."

No Soak Tanks

There is no permanent installation of soak tanks, however, the company uses two trailers that formerly were used to transport milk. These stainless steel tanks, with respective capacities of 3,000 gallons and 2,600 gallons, are located most of the year adjacent in the plant, and adjacent to the processing room. During the green bean, fresh pea, and tomato packing season, they are pulled out of the plant to give extra room. During pea packing, they are used to haul bulk peas to the plant from the viner stations. These multiple use tanks demonstrate again the ingeniousness and "eye for efficiency" that Hanover officials have.

Quality control is precise and thorough at the Hanover plant. Warren Anderson, quality control and product development supervisor for the five Hanover-owned canneries, has his headquarters in the modern, splendidly equipped laboratory at Hanover. Charles Walsh is QC technologist for the Hanover plant. Hanover President Alan R. Warehime, Mr. Fullerton, and Les Savino are all quality minded, and this attitude is reflected in the daily operation of the cannery.

The Hanover plant is gradually being redesigned to give more streamlined, efficient operations. Its warehousing facilities are excellent. The continuous blancher has speeded up production and cut overhead. This year the company is installing completely new can handling equipment. It is being coordinated with the other existing processing equipment and schedules.

In addition to dry beans and snap beans, the Hanover Canning Co., which has plants at Hanover and Mt. Holly Springs, also processes corn, tomatoes, tomato products, and green peas.

Equipment used in bean line at Hanover Canning Co., includes:

Blancher, pumps.....Scott Viner Co.
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Predict Maturity

(*Continued from Page 17*)

could be used instead if measurement is made below 1 in. in the soil. The error would be neglegible for agricultural purposes.[1]

Different soil types will have different depths of planting. Therefore, the one inch depth used in this study would not be useful for regions other than Iowa.

Significant Period

Emphasis is placed on the choice of a significant period during the growth of the sweet corn. In order to make a reasonable choice of significant period, the morphological development of sweet corn in various stages has to be considered.

It has been found that the subterranean ears initiated underground on the stem become functioning ears if the environmental conditions are favorable. Thus,

1. The time interval for the first two or three weeks after planting would be the significant period.
2. The soil temperature should be one of the significant elements.

The test has been set up using mean temperatures for during the period one day prior to planting until 12 days after planting.

Chart I is a scatter diagram with the mean temperature during this period plotted against the number of days of growth. Each dot in the diagram represents a year.

A smooth curve is drawn and the vertical distance between each dot and the curve measured in days is the departure of the actual from the predicted days to maturity, provided the curve is considered as a predicting curve.

For example, if the mean soil temperature is 70° the corresponding length of growth of Ioana variety would be 85 days.

A new chart is necessary for each variety.

Degree Hours

In 1952, Lana and Haber[2] of Iowa State College used the above crop data in predicting the date of maturity by means of the cumulative degree hours instead of degree days. This is one of the refined methods among heat unit system. Their findings can best be stated by quoting the authors' own words which were published in the Proceedings of the American Society for Horticulture Science:

"Actual sweet corn harvest date predictions cannot be made with confidence to serve the canners' needs because of the inter-relationship of the various factors which influence the effect of cumulative degree hours

Lana and Haber's Method	Wang's Method
SIGNIFICANT ELEMENT:	
1. Air Temperature.	1. Soil Temperature.
SIGNIFICANT PERIOD:	
2. The entire growing season.	2. One day prior to planting and 12 days after planting.
METHOD OF COMPUTATION:	
3. An accumulation of the daily degree hours for the entire growing season of the crop. It may be formulated as: $((T_{max} + T_{min})/2 - 50)\ 24$.	3. Mean soil temperature for the said significant period at one-inch depth.
VERIFICATION:	
4. Mean absolute departure from actual date in days: (Standard deviation in parenthesis)	4. Mean absolute departure from actual date in days: (Standard deviation in parenthesis)
Ioana — 5 (7) Goldencross — 4 (6) Silvercross — 4 (7) Iogent 27 — 3 (5) Mean 4.0	Ioana — 2 (7) Goldencross — 3 (6) Silvercross — 3 (7) Iogent 27 — 2 (5) Mean 2.5
Extreme departure from actual date in days:	Extreme departure from actual date in days:
Ioana — 12 Goldencross — 8 Silvercross — 9 Iogent 27 — 8	Ioana — 4 Goldencross — 7 Silvercross — 8 Iogent 27 — 6

Table I: Comparison of Lana's method and Wang's method in the prediction of the date of maturity of sweet corn grown in Ames, Ia.

on rate of maturity. The use of the degree hour method as an aid in scheduling space-planting appears to be the most advantageous use of the method."

A comparison of Lana's method and my method, which would serve as a guide toward the improvement of the heat unit system, is given in Table I. My method has the following advantages:

1. Its Earliness – Thus, forecasting in maturity can be made within two weeks' time after planting.

2. Its Accuracy – Within a 2-day departure from the actual values there are 25 cases out of 43. That is 61% accuracy obtained from my method. However, there is only 16 out of 43 cases, or 37% accuracy, if Lana and Haber's method is used.

3. Its Simplicity – Much less computation is needed.

References

1. Hamid, Q. and R. H. Shaw, 1955. Measurement of Soil Temperature with Laboratory Mercury-in-glass Thermometer, Journal of Science, 30 (2):243-247, Iowa State College.
2. Lana, E. P., and E. S. Haber, Seasonal Variability as Indicated by Cumulative Degree Hours with Sweet Corn, Proceedings of the Amer. Soc. for Hort. Science 59: 389-392, 1952.

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Man of the Month

Adolph C. Ketzler
President
Bordo Products Co.

Adolph C. Ketzler has been the driving force behind Bordo Products Co., Chicago, Ill., since he joined the firm in 1936. At that time, the date and citrus products firm was suffering from a financial unbalance. Despite a sizable production and sales volume, it seemed to be making little progress and little profit.

The stockholders decided that a trouble shooter was needed to shake things up. They needed a tough, smart man for the job. They got him.

Salesman and Comptroller

Mr. Ketzler was assistant to the comptroller then, at the Stewart Warner Corp. He had a background of both business management and sales. After his graduation from the University of Illinois, class of 1923, he had worked for U.S. Gypsum Co. as a salesman until he joined the Stewart Warner Corp.

In 1936, Bordo Products Co., only 12 years old, was a large date packer. It had first shifted emphasis from nut packing to dates, and then in 1927 began packing citrus products. This part of the business now includes grapefruit sections, orange juice, blends, salads, concentrates, etc.

Management Shuffled

Mr. Ketzler made a preliminary trip to Florida to look over the operation and returned to Chicago to report that a drastic reorganization was needed.

He was immediately sent back again, this time as the operating head of the company. The reorganization was severe. But, according to local Chicago legend, the next month the company started making money.

Two years later, in 1938, Mr. Ketzler became president of the firm.

Under the direction of Mr. Ketzler, Bordo has become an established name in the date packing end of the business. Bordo was one of the first companies to pack a pasteurized date. It was early in adopting a loose pack. It has been a leader in trying out new packing techniques.

Largest Date Packer

At the present time, Bordo Products is the second largest date packing company in the country.

The expansion of the citrus products operation also came under the direction of Mr. Ketzler. The operation is now concentrated in Winter Haven, Fla. A plant in McAllen, Tex. suffered the fate of the entire Texas citrus industry during the disastrous freeze several years ago.

Two of the more vigorous spurts taken by Bordo Products Co. were during the World War II in helping to supply the armed services with citrus products, and again after the war with the advent of concentrated citrus juices.

Hole-in-One

Mr. Ketzler's business associates speak fondly of his "competitiveness." He deserves the description. It was evident even during his high school days in Chicago. He was an outstanding athlete. The year his school sent its basketball team to the city finals, Adolph Ketzler was captain.

He is still a sportsman. His golf game is powerful. He is the only man who has made a hole-in-one on the 17th hole at the Laundale Golf Club, Fort Lauderdale, Fla. Even though a feat of this sort is mostly luck, on the Laundale course the ball must bounce up on a green 212 yards away from the tee.

Mr. Ketzler is both liked and respected as a business man. His generosity as a host is also highly regarded. Many of his Chicago attachments date back to his college days as a member of the Chi Phi fraternity. He is still a strong supporter of the University of Illinois chapter.

Mr. Ketzler and his wife, Ruth, live in north Chicago. He is a member of the Evanston (Ill.) Golf Club, the Chicago Athletic Club, LaGorce (Fla.) Country Club and the Fort Lauderdale (Fla.) Yacht Club. He also serves on the Administrative Council of the National Canners Association.

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WISCONSIN—Most commercial acreage in Kenosha area showed from light to severe infections of late blight. On a location where "Manzate" at 3 lbs. per acre had been applied every 6 days, only two tomato fruits infected with late blight were located at examination time.

OHIO—In tests conducted against late blight, a straight disease control schedule of "Manzate" was superior to 9 other fungicide schedules. Late blight was severe late in the season—at which time "Manzate" demonstrated its superior power.

LOUISIANA—Tomatoes sprayed at recommended rates with "Manzate" gave greater total yields of marketable fruits than those treated with a copper fungicide.

NEW YORK—Early blight caused severe and near complete defoliation in unsprayed tomato fields, but where a minimum of four maneb sprays were applied, control was excellent.

INDIANA—"Manzate" consistently gave best defoliation control (early blight and septoria), and tomatoes treated with "Manzate" gave highest yields. Maneb is the preferred tomato fungicide because of its all-around greater effectiveness against the five most important leaf and fruit diseases of tomatoes in Indiana.

FLORIDA—Late blight was the most serious disease encountered in one test involving some 17 fungicide schedules. In fact, one of the worst outbreaks in the history of tomato production occurred in many areas of south Florida. "Manzate" held late blight more effectively than zineb, and the latter proved to be more effective than nabam.

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